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KING COUNTY DEPARTMENT OF  
NATURAL RESOURCES AND PARKS**

**PRE-CONSTRUCTION SEDIMENT CHARACTERIZATION STUDY  
DENNY WAY/LAKE UNION CSO CONTROL PROJECT**

**FINAL REPORT**

**MARINE SEDIMENT CHEMISTRY  
BENTHIC INFAUNA COMMUNITY ASSEMBLAGE  
SEDIMENT PROFILE IMAGING AND VIDEO SURVEY**

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Prepared for the

King County Department of Natural Resources  
Wastewater Treatment Division

by the

King County Department of Natural Resources  
Water and Land Resources Division

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King County Department of Natural Resources  
Wastewater Treatment Division  
201 South Jackson Street, Suite 501  
Seattle, Washington 98104

October 2001

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**MEMORANDUM**

**DATE:** October 31, 2001

**TO:** Recipients

**FROM:** Scott Mickelson  
Marine Monitoring Group

**SUBJ:** Transmittal of Final Report  
Pre-Construction Sediment Characterization Study  
Denny Way/Lake Union CSO Control Project

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This document transmits results of a pre-construction sediment characterization study performed by King County for the Denny Way/Lake Union Combined Sewer Overflow (CSO) Control Project. This work was performed to establish a baseline for sediment quality prior to construction of two CSO outfalls into Elliott Bay offshore of Myrtle Edwards Park in Seattle. The study is the initiation of a long-term sediment monitoring program, which will meet requirements of the Biological Opinion WSB-00-039 issued for the CSO control project by the Nation Marine Fisheries Service under the Endangered Species Act (16 U.S.C. 1531 et seq.).

This document includes the following reports and associated appendices:

- Marine Sediment Chemistry – Prepared by the King County Department of Natural Resources, Water and Land Resources Division, Marine Monitoring Group; Seattle, Washington.
- Benthic Infauna Community Assemblage – Prepared by the King County Department of Natural Resources, Water and Land Resources Division, Marine Monitoring Group; Seattle, Washington.
- Sediment Profile Imaging and Video Survey Data Report – Prepared by Striplin Environmental Associates, Inc.; Olympia, Washington.

Should you have any questions regarding this document or the data included herein, please contact me at (206) 296-8247 (phone), (206) 296-0192 (fax), or [scott.mickelson@metrokc.gov](mailto:scott.mickelson@metrokc.gov) (e-mail).

DEPARTMENT OF NATURAL RESOURCES  
WATER AND LAND RESOURCES DIVISION  
201 South Jackson Street - Suite 600  
Seattle, Washington 98104  
(206) 296-6519 phone (206) 296-0192 fax

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DENNY WAY/LAKE UNION CSO CONTROL PROJECT**

**FINAL REPORT  
MARINE SEDIMENT CHEMISTRY**

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Prepared for the

King County Department of Natural Resources  
Wastewater Treatment Division

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Scott Mickelson  
King County Department of Natural Resources  
Water and Land Resources Division  
Marine Monitoring Group

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King County Department of Natural Resources  
Wastewater Treatment Division  
201 South Jackson Street, Suite 501  
Seattle, Washington 98104  
(206) 684-1280

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# 1 INTRODUCTION

This report presents results of a pre-construction, baseline characterization study of surface sediment quality near an existing outfall and planned outfalls serving King County's Denny Way/Lake Union combined sewer overflow (CSO) control project. The report includes a project background, descriptions of sampling and analytical methodologies, a summary of chemistry analytical results, and conclusions. Appendices to the report include complete analytical results and a quality assurance review of the chemistry data. This work is being performed as part of a long-term sediment monitoring program to meet requirements of Biological Opinion WSB-00-039 (NMFS, 2000) issued for the project by the National Marine Fisheries Service (NMFS) under the Endangered Species Act (16 U.S.C. 1531 et seq.).

## 1.1 Project Background

The Denny Way/Lake Union CSO control project is a joint effort of King County's Wastewater Treatment Division and Seattle Public Utilities to control City and County CSO discharges into Lake Union and the Denny Way CSO into Elliott Bay. The project will include construction of two outfalls into Elliott Bay: a 490-foot outfall at a depth of approximately 60 to 70 feet referenced to mean lower low water (MLLW) that will discharge treated CSO effluent during moderately heavy storm events; and a 100-foot extension of the existing outfall to a depth of approximately 20 feet MLLW that will discharge untreated CSO effluent to Elliott Bay during the once-per-year event when flows exceed system capacity. Additional project information may be found in the project Environmental Impact Statement/Environmental Assessment document (King County, City of Seattle, and EPA, 1998).

Pursuant to the Biological Opinion, King County developed a sediment monitoring plan to monitor the benthic environment surrounding the CSO outfalls. The primary goal of the sediment monitoring plan is to produce scientific data of known quality that can be used to determine whether implementation of the Denny Way/Lake Union CSO control project and future operation of the facility has caused an impact to the biological communities in the marine environment surrounding the CSO outfalls. If operation of the CSO facility causes increased contamination of marine sediments in the surrounding area to levels that exceed published sediment quality criteria, the monitoring program will identify such contamination and help King County and associated agencies develop a response plan. The sampling event described in this report was intended to evaluate the chemical conditions of marine sediment in the vicinity of the existing and planned CSO outfalls, prior to construction.

## 1.2 Site Description

The Denny Way/Lake Union CSO control project outfall and sediment monitoring site (Denny Way site) is located on the northeast side of Elliott Bay, adjacent to Myrtle Edwards Park in Seattle, Washington (Figure 1). The existing Denny Way CSO outfall is located in the intertidal zone and discharges directly onto the beach when storm events occur during low tides. The shoreline around the CSO is heavily armored with riprap. Bathymetry in the area is gently sloping.

The existing Denny Way CSO is the largest in King County's system and large volumes of combined storm water runoff and untreated sewage have historically been discharged at this location. In 1986, King County (then Metro) began a trial program to identify and reduce

toxicant inputs to the sewer system discharging through the Denny Way CSO. The Denny Way Sediment Cap was implemented in 1990 as a demonstration project to remediate nearby contaminated sediments. The cap is a 3-foot thick layer of clean sediment placed over three acres of contaminated sediment offshore of the outfall.

Sediment data from the Denny Way Sediment Cap monitoring program showed that surface sediments in the center of the cap were gradually becoming recontaminated with elevated concentrations of phthalate compounds, the highest concentrations detected at the monitoring station closest to the existing Denny Way CSO outfall (Striplin Environmental Associates [SEA], 1997). Elevated chemical concentrations in sediments surrounding the cap have also been detected (SEA, 1998). Chemicals of concern include polychlorinated biphenyls (PCBs), phthalate compounds, and mercury. Five areas of concern requiring some type of remediation have been identified in the vicinity of the Denny Way CSO outfall (SEA, 1999). Two of these areas are located inshore of the sediment cap and three are located offshore of the cap.

## **2 SAMPLE COLLECTION**

The primary goal of the pre-construction sediment characterization study was to establish a baseline for sediment quality in the vicinity of the CSO control project outfalls. This baseline will be used as one benchmark to which results from post-construction and post-remediation sediment monitoring and future sediment monitoring during facility operation will be compared. The data quality objectives of the pre-construction sediment study necessary to meet sediment monitoring program goals are to:

- evaluate the areal extent and spatial variations of sediment chemical concentrations in the vicinity of the existing Denny Way CSO and new outfalls; and
- evaluate sediment chemical concentrations in the study area relative to current marine sediment quality standards of Chapter 173-204 WAC (Washington State Department of Ecology [Ecology], 1995) and the Puget Sound Dredged Disposal Analysis (PSDDA) program (Army Corps of Engineers [ACOE], 2000).

A full description of project data quality objectives may be found in the project sampling and analysis plan (SAP), issued prior to sampling activities (King County, 2001a). Results of benthic community assemblage sampling and analysis and sediment profile imaging/video survey studies, which were performed concurrently with sediment chemistry sampling and analysis may be found in separate reports (King County, 2001b and SEA, 2001). This section describes sampling activities including station positioning and sample collection and handling. All sampling activities were conducted following guidance suggested in the Puget Sound Protocols (Puget Sound Estuarine Program [PSEP], 1996a and 1998).

### **2.1 Sample Locations and Station Positioning**

Samples were collected for analysis of sediment chemistry from 16 stations in the study area (Figure 2). The 16 stations were arranged around the new CSO outfalls in a grid pattern consisting of transect lines running perpendicular to the shoreline. The two outer transect lines consisted of four stations each, and the two inner transect lines consisted of three stations each. The final two stations were located near the future location of the terminus of the new 490-foot CSO outfall.

Fourteen of the 16 sediment sampling locations were positioned on stations at which previous sediment samples were collected as part of the Denny Way Sediment Characterization (SEA, 1998). Previous chemistry data from these stations will enhance the database for the monitoring program and provide a more robust baseline characterization of sediment quality in the study area. Sampling locations were selected and coordinates prescribed prior to all field activities. Prescribed coordinates are shown in Table 1.

Surface sediment grab samples were collected from King County's research vessel *Liberty*, which is equipped with a differential global positioning system (DGPS). Field coordinates were recorded using DGPS for each sediment grab as the sampler contacted the seafloor. The DGPS is a satellite-based navigation system that operates using a receiver to calculate ground position by triangulating scrambled data transmitted by a constellation of satellites operated by the Department of Defense (DOD). The ship-board "differential" receiver receives both the scrambled DOD signal and "corrected" signals originating from base stations operated by various agencies including the Coast Guard and King County. System software applies the differential correction and calculates a precise, real-time navigational position.

Chemistry samples were collected from the top two centimeters (cm) of sediment recovered from a minimum of three deployments of a Van Veen grab sampler. Sampling the top two cm of sediment allows evaluation of sediment quality in the most recently deposited material for establishment of the baseline and for comparison from year to year. Coordinates for each grab deployment are shown in Table 1 and are compared to the prescribed study coordinates.

## **2.2 Sample Collection and Handling**

Sixteen surface sediment samples and one field replicate were collected between April 9 and 19, 2001. Sediment was obtained using two stainless steel, modified, 0.1 m<sup>2</sup> Van Veen grab samplers deployed in tandem from the *Liberty*. Samples were comprised of sediment collected from three grab deployments at each station. A single deployment of the tandem Van Veen grab samplers was considered "two deployments" when both of the grabs returned an acceptable sample.

A minimum sediment recovery depth of 4 cm was required in each acceptable grab to allow collection of the top 2 cm of sediment without sampling sediment that had touched the sides or bottom of the grab sampler. The sediment was removed from the grab using stainless-steel spatulas and 200 cm<sup>3</sup> "cookie cutters" and placed into a stainless-steel bowl for thorough homogenization. Analytical sample aliquots were split out into labeled, pre-cleaned containers supplied by the King County Environmental Laboratory.

A separate set of stainless-steel sampling equipment was dedicated to each station, precluding the need for decontamination of this field gear. The Van Veen grab sampler was decontaminated between stations by scrubbing with a brush and ambient seawater, followed by a thorough *in situ* rinsing.

Samples were stored in ice-filled coolers from the time of collection until delivery to the King County Environmental Laboratory. Samples were delivered under chain-of-custody and were maintained as such throughout the analytical process. Samples were stored frozen at a temperature of -18°C by the laboratory until analysis, with the exception of samples for ammonia nitrogen, particle size distribution, and total sulfide analyses. These samples were stored

refrigerated at approximately 4°C. All analyses were conducted by the King County Environmental Laboratory with the exception of particle size distribution and total sulfides, which were analyzed at Rosa Environmental, a subcontracted laboratory accredited by Ecology.

### **3 SAMPLE ANALYSIS**

Sixteen marine sediment samples and one field replicate collected from the Denny Way site were submitted for chemical analysis of conventional, trace metal, and trace organic parameters. This section describes the type of analyses performed, analytical methodologies used, and the associated quality assurance/quality control (QA/QC) procedures followed. Analyses were selected to allow comparison of sediment data to the Sediment Management Standards (SMS) sediment chemical criteria found in Tables 1 and 3 of Chapter 173-204 WAC (Ecology, 1995), along with the Puget Sound Dredged Disposal Analysis (PSDDA) program sediment chemical criteria (ACOE, 2000). A complete list of all target analytes may be found in the project SAP (King County, 2001). A complete list of all parameters analyzed along with their respective detection limits are included in Appendix A.

#### **3.1 Conventional**

Conventional analyses included ammonia nitrogen, particle size distribution (PSD), percent solids, total organic carbon (TOC), and total sulfides. Percent solids and TOC analyses were performed to provide data necessary to normalize sediment data to dry weight and organic carbon, respectively. Percent solids analysis was performed according to Standard Method (SM)2540-G, gravimetric determination. TOC analysis was performed following EPA Method 9060, high-temperature combustion with infrared spectroscopy. PSD analysis was performed according to ASTM Method D422, a combination of sieve and hydrometer analyses. Ammonia nitrogen and total sulfide, additional indicators of sediment quality, were analyzed according to methods SM4500-NH3-G (potassium chloride extraction with autoanalyzer) and SM4500-S2-D (colorimetric determination), respectively.

#### **3.2 Trace Metals**

Trace metal analytes included antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. SMS provides regulatory criteria for arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc. PSDDA also provides regulatory criteria for antimony and nickel. With the exception of mercury, all metal analyses were performed following EPA Method 3050A/6010B; strong-acid digestion with inductively coupled plasma optical emission spectroscopy. Mercury was analyzed according to EPA Method 245.5, cold vapor atomic absorption spectroscopy.

#### **3.3 Trace Organics**

Trace organic analytes included base/neutral/acid extractable semivolatile compounds (BNAs), chlorinated pesticides, polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs). BNA analysis was performed following EPA Method 3550B/8270C (SW-846), gas chromatography with mass spectroscopy (GC/MS). Chlorinated pesticides and PCBs were analyzed by EPA Method 8081A/8082 (SW-846), gas chromatography with electron capture detection (GC/ECD). VOCs were analyzed by EPA Method 8260B (SW-846), purge and trap



with GC/MS analysis. This suite of analytes includes all organic compounds for which SMS and PSDDA provide sediment regulatory criteria.

### **3.4 Quality Assurance/Quality Control (QA/QC)**

All analyses were performed following guidance recommended in the Puget Sound Protocols (PSEP 1986, 1996b, and 1996c) including associated QA/QC practices. Laboratory QA/QC practices produced chemistry data of sufficient quality to pass QA2 review. Chemistry data were reviewed following QA2 guidelines (Ecology, 1989) and flagged with data qualifiers where appropriate. A comprehensive report of analytical data, including qualifier flags is included as Appendix A. The QA review narrative is included as Appendix B.

## **4 ANALYTICAL RESULTS**

This section discusses analytical results for the sixteen marine surface sediment samples collected near the Denny Way site and compares the trace metals and trace organics data to sediment chemical criteria specified under SMS and PSDDA. Complete chemistry analytical results are included as Appendix A. A summary of analytical results for conventional parameters and for metals and organic compounds regulated under SMS and PSDDA are presented in Table 2.

### **4.1 Conventional**

Conventional analytical results are presented normalized to dry weight in units of milligrams per kilogram (mg/Kg DW) for ammonia nitrogen, TOC, and total sulfides. Results for PSD, solids, and volatile solids are presented as percent on a wet weight basis.

The patterns of particle size distribution vary widely at the Denny Way site. PSD results indicate the following environments:

- a very sandy environment at station DWMP-10 near the existing CSO outfall;
- an area of deposition near the location of the new, deeper outfall with a higher percentage of fine material at stations DWMP-8 and DWMP-9;
- and two nearshore areas that are fairly gravelly at stations DWMP-5 and DWMP-13.

Other stations at the Denny Way site were generally a “silty-sand” environment. TOC concentrations ranged from 3,350 to 33,100 mg/Kg DW, or approximately 0.3 to 3.3%. TOC distribution was somewhat correlated with the distribution of fine material, as expected.

Ammonia nitrogen was detected in all 16 samples at concentrations ranging from 1.86 to 8.97 mg/Kg DW. Total sulfides were also detected in all 16 samples concentrations ranging from 4.43 to 630 mg/Kg DW. The ranges for both ammonia nitrogen and total sulfide concentrations were fairly large, however, a correlation between these parameters and other conventional parameters was not evident.

### **4.2 Trace Metals**

Trace metals results are presented normalized to dry weight in units of mg/Kg DW. With the exception of mercury, all trace metals were detected at concentrations below SQS or PSDDA screening level chemical criteria.

Mercury was detected in samples collected from all sixteen stations at concentrations ranging from 0.052 to 0.741 mg/Kg DW. Mercury concentrations exceeded the SQS chemical criterion of 0.41 mg/Kg DW at five stations and exceeded the CSL chemical criterion of 0.59 mg/Kg DW at four stations. Figure 3 shows the relative distribution of mercury concentrations detected at the Denny Way site.

### **4.3 Trace Organics**

Trace organic results are reported in units of micrograms per kilogram normalized to dry weight ( $\mu\text{g/Kg DW}$ ) for ionic organic compounds such as phenolics, acids, and alcohols, as well as the chlorinated pesticides, and volatile organic compounds. SMS generally requires that results for non-ionizable organic compounds be normalized to organic carbon for comparison with sediment chemical criteria. These compounds include polynuclear aromatic hydrocarbons (PAHs), phthalates, chlorobenzenes, some miscellaneous compounds, and polychlorinated biphenyls (PCBs). These non-ionic organic compounds are presented in units of milligrams per kilogram normalized to organic carbon ( $\text{mg/Kg OC}$ ). Two non-ionic compounds, hexachloroethane and 1,3-dichlorobenzene do not have SMS chemical criteria. Results for these two compounds are presented in units of  $\mu\text{g/Kg DW}$  for comparison with PSDDA chemical criteria.

#### **4.3.1 Non-Ionic BNAs**

Analytical results for the complete list of BNA compounds are included in Appendix A. Those BNA compounds regulated under SMS and/or PSDDA are reported in Table 2.

##### **4.3.1.1 Polynuclear Aromatic Hydrocarbons (PAHs)**

One or more low molecular weight (LPAH) or high molecular weight (HPAH) PAHs were detected in all sixteen samples. The reported chrysene concentration of 133  $\text{mg/Kg OC}$  at station DWMP-05 exceeded the SQS chemical criterion of 110  $\text{mg/Kg OC}$ . With the exception of station DWMP-01, reported PAH concentrations at all other stations were below SQS or PSDDA screening level chemical criteria. Reported concentrations of five HPAH compounds, as well as the total HPAH value, in the sample collected from station DWMP-01 exceeded SQS chemical criteria. These concentrations, however, were all below the associated CSL chemical criteria.

##### **4.3.1.2 Chlorobenzenes**

1,4-Dichlorobenzene was detected in one sample. The reported 1,4-dichlorobenzene concentration of 0.0489  $\text{mg/Kg OC}$  in the sample collected from station DWMP-08 is below the SQS chemical criterion of 3.1  $\text{mg/Kg OC}$ . Other chlorobenzene compounds were not detected.

##### **4.3.1.3 Phthalates**

Benzyl butyl phthalate was detected in 15 of 16 samples at concentrations ranging from 1.89 to 34.8  $\text{mg/Kg OC}$ . Benzyl butyl phthalate concentrations exceeded the SQS chemical criterion of 4.9  $\text{mg/Kg OC}$  at nine stations. Figure 4 shows the relative distribution of benzyl butyl phthalate concentrations detected at the Denny Way site.

Bis(2-ethylhexyl) phthalate was detected in all 16 samples at concentrations ranging from 17.6 to 304  $\text{mg/Kg OC}$ . Bis(2-ethylhexyl) phthalate concentrations exceeded the SQS chemical criterion of 47  $\text{mg/Kg OC}$  at four stations and exceeded the CSL chemical criterion of 78  $\text{mg/Kg OC}$  at

three stations. Figure 5 shows the relative distribution of bis(2-ethylhexyl) phthalate concentrations detected at the Denny Way site.

Di-N-butyl phthalate was also detected in all sixteen samples, at concentrations all well below the SQS chemical criterion of 220 mg/Kg OC. The QA data review indicated that analytical results for this compound were negatively impacted by laboratory contamination, indicated by its presence in analytical method blanks. Data for this compound should be viewed in light of this information.

#### **4.3.2 Ionic BNAs**

Benzoic acid was the only ionic BNA compound detected in these samples. It was detected in all sixteen samples at concentrations ranging from 145 to 392  $\mu\text{g/Kg DW}$ . These concentrations are all below the SQS/CSL criterion of 650  $\mu\text{g/Kg DW}$ .

#### **4.3.3 Chlorinated Pesticides**

4,4'-DDD was detected in all 16 samples at concentrations ranging from 0.974 to 20.0  $\mu\text{g/Kg DW}$ . 4,4'-DDE was detected in 14 of 16 samples at concentrations ranging from 0.37 to 3.07  $\mu\text{g/Kg DW}$ . 4,4'-DDT was not detected. The PSDDA chemical criteria for this class of organic compounds are based on total DDT, which is a sum of the reported DDD, DDE, and DDT concentrations. "Total DDT" concentrations exceeded the PSDDA screening level criterion of 6.9  $\mu\text{g/Kg DW}$  at nine stations. Total DDT concentrations did not exceed either the PSDDA bioaccumulation trigger or maximum level chemical criteria (50 and 69  $\mu\text{g/Kg DW}$ , respectively) at any station. Other target chlorinated pesticide compounds were not detected in any sample. Figure 6 shows the relative distribution of total DDT concentrations detected at the Denny Way site.

#### **4.3.4 PCBs**

PCBs were detected at all sixteen stations at concentrations ranging from 6.19 to 35.1 mg/Kg OC (total PCBs). Reported total PCB concentrations were comprised exclusively of Aroclors<sup>®</sup> 1248, 1254, and 1260. Total PCB concentrations exceeded the SQS chemical criterion of 12 mg/Kg OC at 10 of 16 stations. Total PCB concentrations did not exceed the CSL of 65 mg/Kg OC at any station. Figure 7 shows the relative distribution of total PCB concentrations detected at the Denny Way site.

#### **4.3.5 Volatile Organic Compounds**

Target volatile organic compounds were not detected in any sample. The MDL for ethylbenzene exceeded the PSDDA screening level chemical criterion of 10  $\mu\text{g/Kg DW}$  in six of 16 samples. MDL values for these six samples ranged from 11 to 13  $\mu\text{g/Kg DW}$ .

## **5 SUMMARY AND CONCLUSIONS**

Sixteen marine surface sediment samples were collected between April 9 and 19, 2001 in the vicinity of existing and planned outfalls for the Denny Way/Lake Union CSO control project. Samples were collected from the 0 to 2 cm depth stratum and submitted for chemical analysis. Sampling and analysis was performed to characterize sediment quality near the existing and planned outfalls prior to construction activities. The work was performed as part of a long-term

sediment monitoring program to establish a baseline against which future sediment quality at the site could be compared. The long-term sediment monitoring program is required under the project Biological Opinion issued by NMFS.

Chemical analysis included sediment conventional parameters to assess physical characteristics and sediment quality, and trace metals and organic compounds that are regulated under SMS and PSDDA. Data have been summarized and presented for comparison to SQS and CSL chemical criteria, as well as PSDDA screening level and maximum level chemical criteria.

Based on sample analytical results, conditions of the surface marine sediment in the vicinity of the Denny Way/Lake Union CSO control project outfalls can be characterized by:

- a wide variety of particle size distributions, including depositional areas with a high percentage of fine material, areas of silty-sand, a very sandy area near the existing outfall, and gravelly areas at two nearshore locations;
- a wide range of concentrations of TOC, ammonia nitrogen, and total sulfides;
- mercury concentrations exceeding the SQS chemical criterion at five stations and exceeding the CSL chemical criterion at four stations;
- benzyl butyl phthalate concentrations exceeding the SQS chemical criterion at nine of 16 stations;
- bis(2-ethylhexyl) phthalate concentrations exceeding the SQS chemical criterion at four stations and exceeding the CSL chemical criterion at three stations;
- total PCB concentrations exceeding the SQS chemical criterion at ten of 16 stations; and
- total DDT concentrations exceeding the PSDDA screening level chemical criterion at nine of 16 stations.

Total PCB concentrations did not exceed the CSL and total DDT concentrations did not exceed either PSDDA bioaccumulation trigger or maximum level chemical criteria. Bis(2-ethylhexyl) phthalate and mercury exceeded the CSL chemical criteria at three and four stations respectively. Stations at the Denny Way site with CSL chemical criteria exceedances are shown in Figure 8.

Data from this study indicate that marine sediment in the vicinity of existing and planned outfalls for the Denny Way/Lake Union CSO control project has been impacted by historic discharges from the existing CSO outfall and other sources. Trace metals and organic compounds detected at concentrations that exceed sediment chemical criteria are similar to those found in another recent study performed at the site (SEA, 1998). Data from both of these studies will be used as a baseline, against which to monitor sediment quality after construction and during operation of the new Denny Way/Lake Union CSO control project outfalls, as well as after sediment remediation efforts at the site.

## 6 REFERENCES

ACOE, 2000. *Dredged Material Evaluation and Disposal Procedures - A Users Manual for the Puget Sound Dredged Disposal Analysis (PSDDA) Program*. United States Army Corps of Engineers, Seattle District. Seattle, Washington.

Ecology, 1989. *Edited Draft Report - Data Validation Guidance Manual for Selected Sediment Variables*. Prepared for the Washington State Department of Ecology by PTI Environmental Services. Bellevue, Washington.

Ecology, 1995. *Sediment Management Standards, Chapter 173-204 WAC*. Washington State Department of Ecology. Olympia, Washington.

King County, 2001a. *Pre-Construction Sediment Characterization Study, Denny Way/Lake Union CSO Control Project, Sampling and Analysis Plan*. Prepared for the King County Department of Natural Resources Wastewater Treatment Division by the King County Department of Natural Resources Water and Land Resources Division. Seattle, Washington.

King County, 2001b. *Pre-Construction Sediment Characterization Study, Denny Way/Lake Union CSO Control Project, Final Report, Benthic Infauna Community Assemblage*. Prepared for the King County Department of Natural Resources Wastewater Treatment Division by the King County Department of Natural Resources Water and Land Resources Division. Seattle, Washington.

King County Department of Natural Resources WTD, City of Seattle SPU and EPA, 1998. *Denny Way/Lake Union Combined Sewer Overflow Control Project, Phases 2 and 3/4: Final SEPA Supplemental Environmental Impact Statement and NEPA Environmental Assessment*. Seattle, Washington.

NMFS, 2000. *Endangered Species Act - Section 7 Biological Opinion, Denny Way/Lake Union CSO Control Project (WSB-00-039)*. Prepared for the United States Environmental Protection Agency, Region 10 by the National Marine Fisheries Service. Seattle, Washington.

PSEP, 1986. *Recommended Protocols for Measuring Conventional Sediment Variables in Puget Sound*. Prepared for the Puget Sound Estuary Program (U.S. Environmental Protection Agency Region 10) by Tetra Tech, Inc. Seattle, Washington.

PSEP, 1996a. *Recommended Guidelines for Sampling Marine Sediment, Water Column, and Tissue in Puget Sound*. Prepared for the Puget Sound Estuary Program (U.S. Environmental Protection Agency Region 10) by the King County Environmental Laboratory. Seattle, Washington.

PSEP, 1996b. *Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment and Tissue Samples*. Prepared for the Puget Sound Estuary Program (U.S. Environmental Protection Agency Region 10) by the King County Environmental Laboratory. Seattle, Washington.

PSEP, 1996c. *Recommended Guidelines for Measuring Organic Compounds in Puget Sound Marine Water, Sediment and Tissue Samples*. Prepared for the Puget Sound Estuary Program

(U.S. Environmental Protection Agency Region 10) by the King County Environmental Laboratory. Seattle, Washington.

PSEP, 1998. *Recommended Guidelines for Station Positioning in Puget Sound*. Prepared for the Puget Sound Estuary Program (U.S. Environmental Protection Agency Region 10) by the King County Environmental Laboratory. Seattle, Washington.

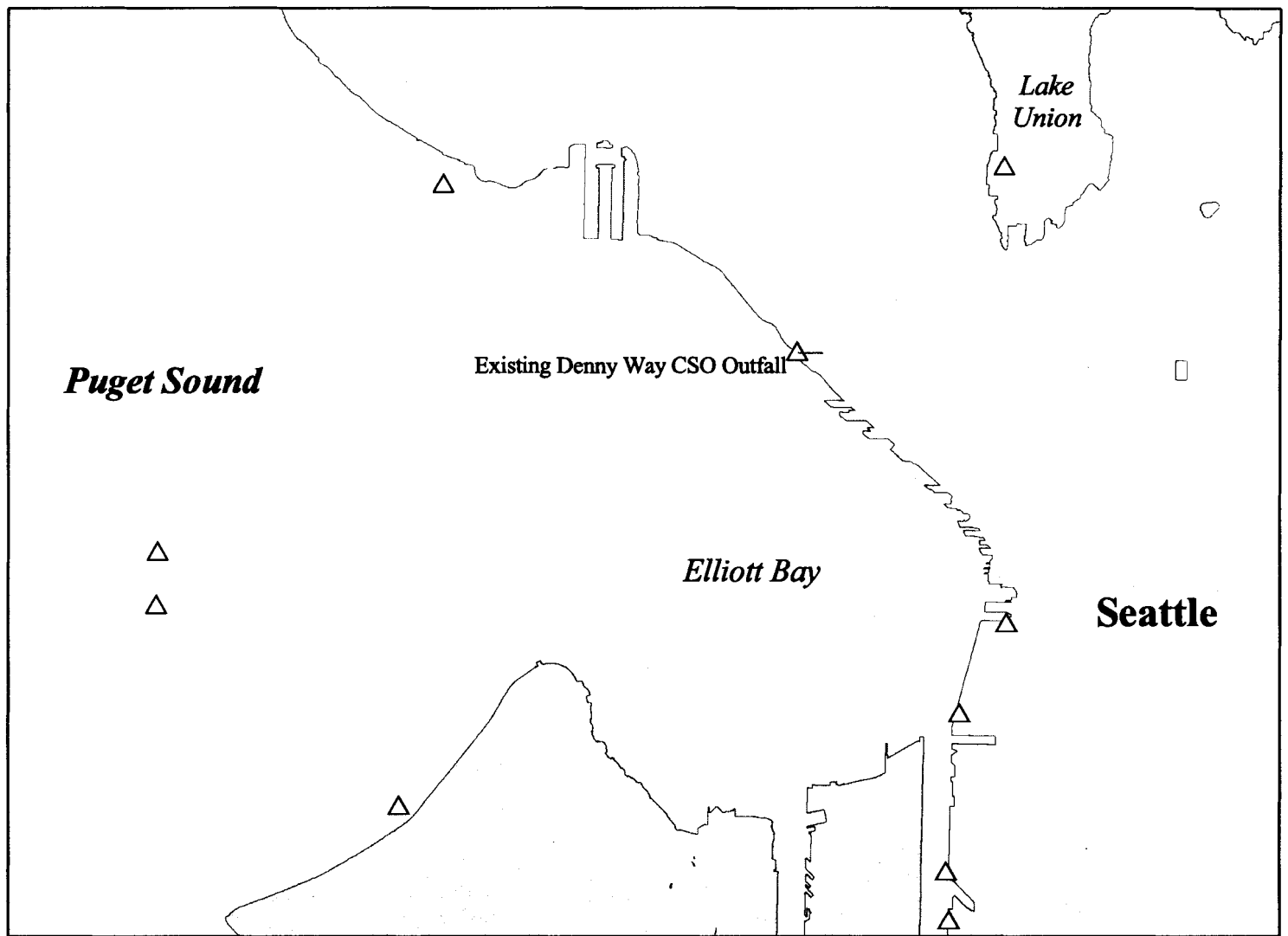
SEA, 1997. *Summary of Existing Information, Denny Way/Lake Union CSO Control Project*. Prepared for King County and Black and Veatch. Seattle, Washington.

SEA, 1998. *Proposed Marine Outfall Sediment Characterization, Denny Way/Lake Union CSO Control Project*. Prepared for King County and Black and Veatch. Seattle, Washington.

SEA, 1999. *Sediment Remediation Plan, Denny Way/Lake Union CSO Control Project*. Prepared for King County and Black and Veatch. Seattle, Washington.

SEA, 2001. *Pre-Construction Sediment Characterization Study, Denny Way/Lake Union CSO Control Project, Sediment Profile Imaging and Video Survey Data Report*. Prepared for King County Wastewater Treatment Division. Olympia, Washington.

**FIGURES**

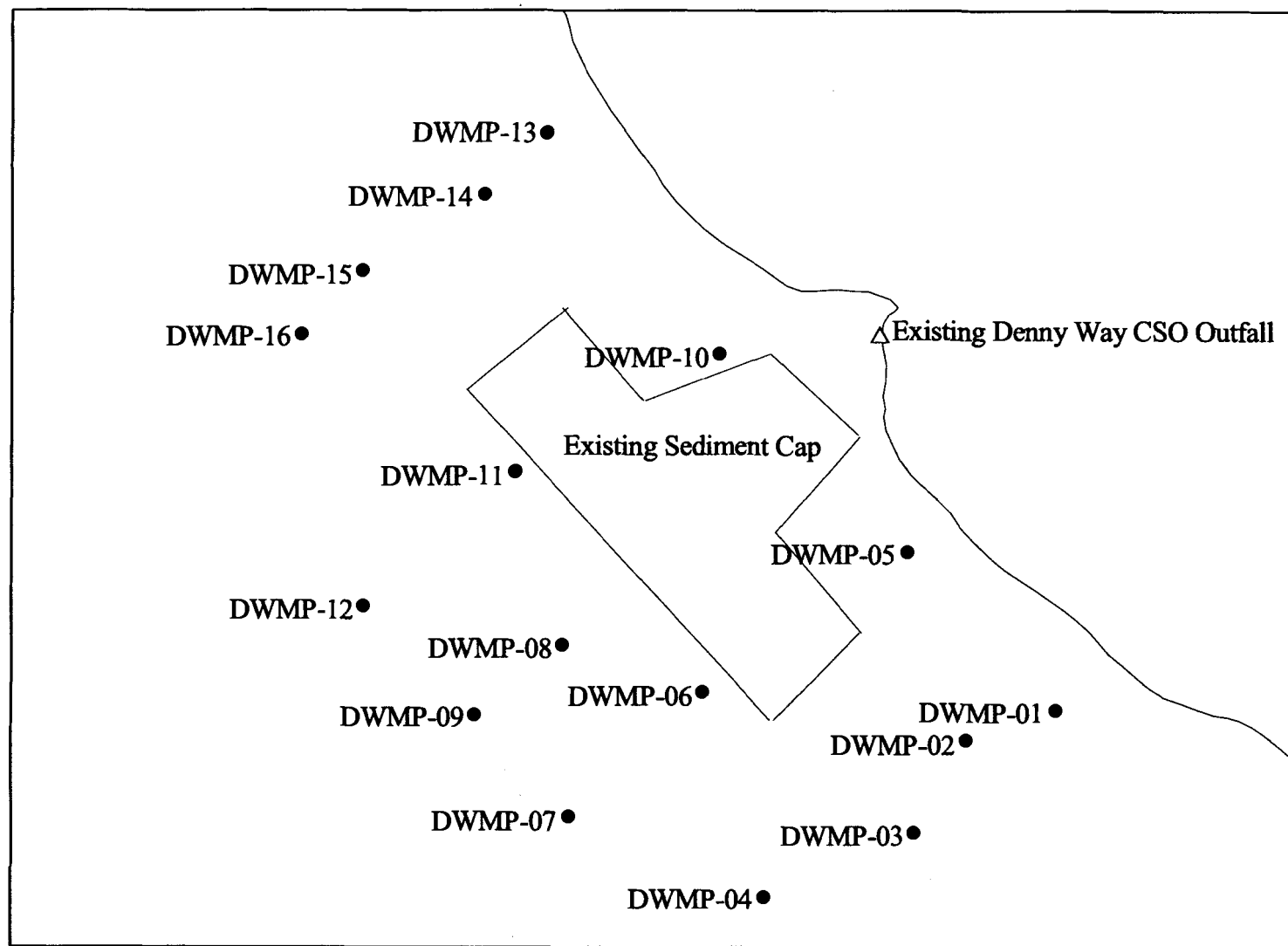


△ King County Outfalls

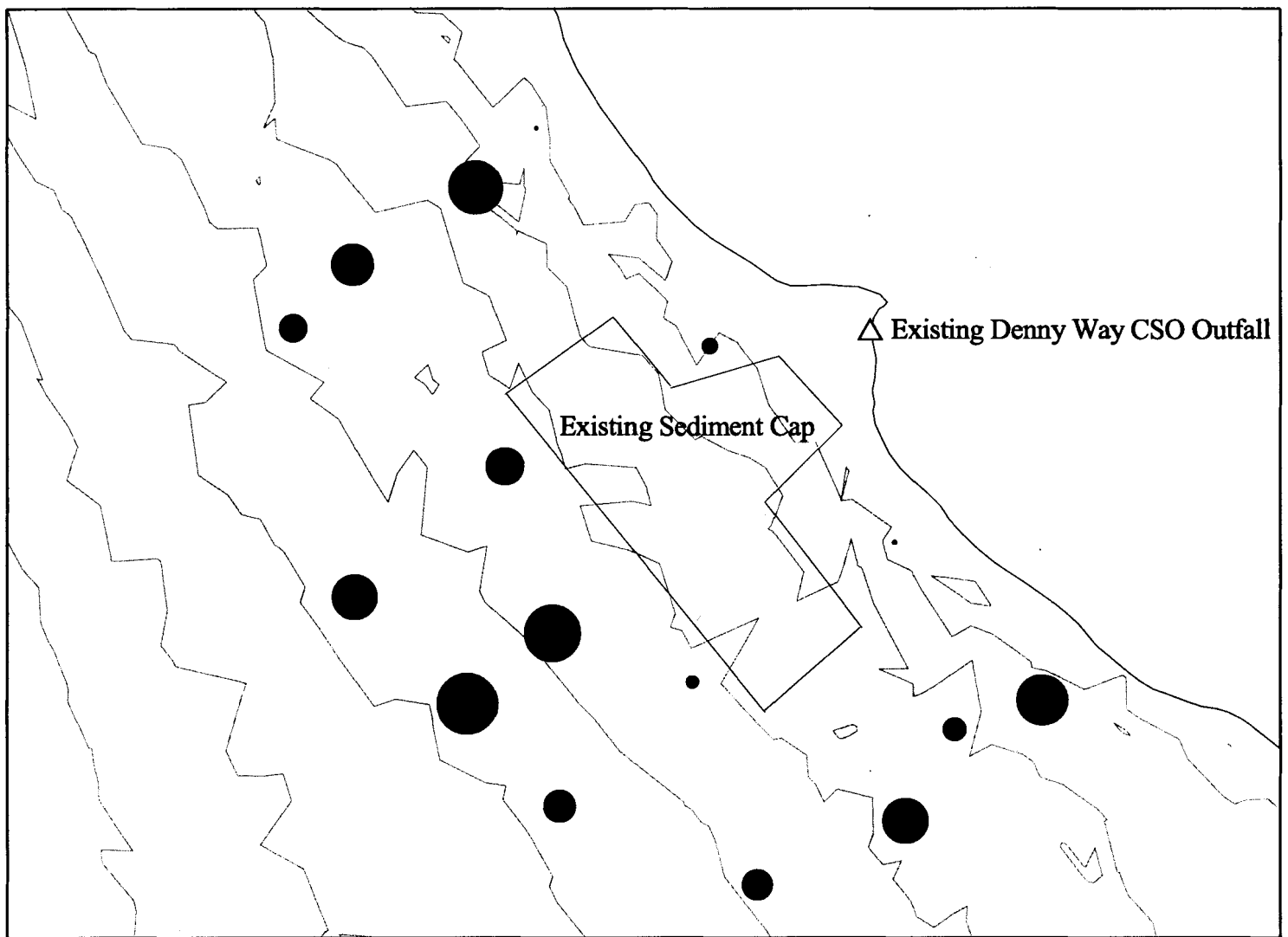
□ Water Features  
□ Land Features

**Figure 1**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Site Vicinity Map**





**Figure 2**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Sediment Chemistry Stations**



- Mercury Concentration Does Not Exceed SQS
- Mercury Concentration Exceeds SQS
- Mercury Concentration Exceeds CSL

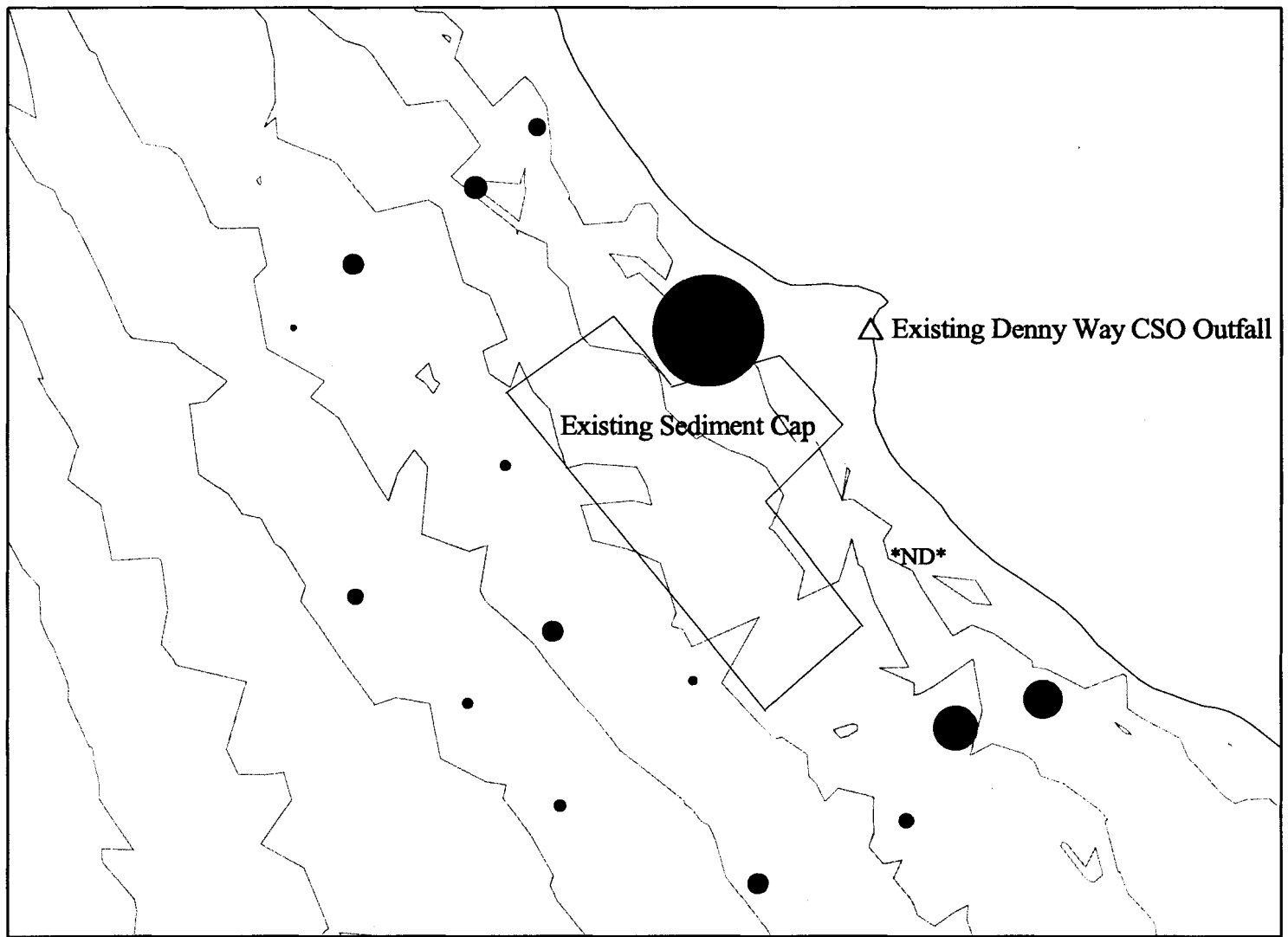
20 Foot Bathymetry

△ King County Outfalls

Water Features

Land Features

**Figure 3**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Relative Concentrations of Mercury**



400 0 400 800 Feet

**\*ND\* Benzyl Butyl Phthalate Not Detected at This Station**

- **Benzyl Butyl Phthalate Concentration Does Not Exceed SQS**
- **Benzyl Butyl Phthalate Concentration Exceeds SQS**

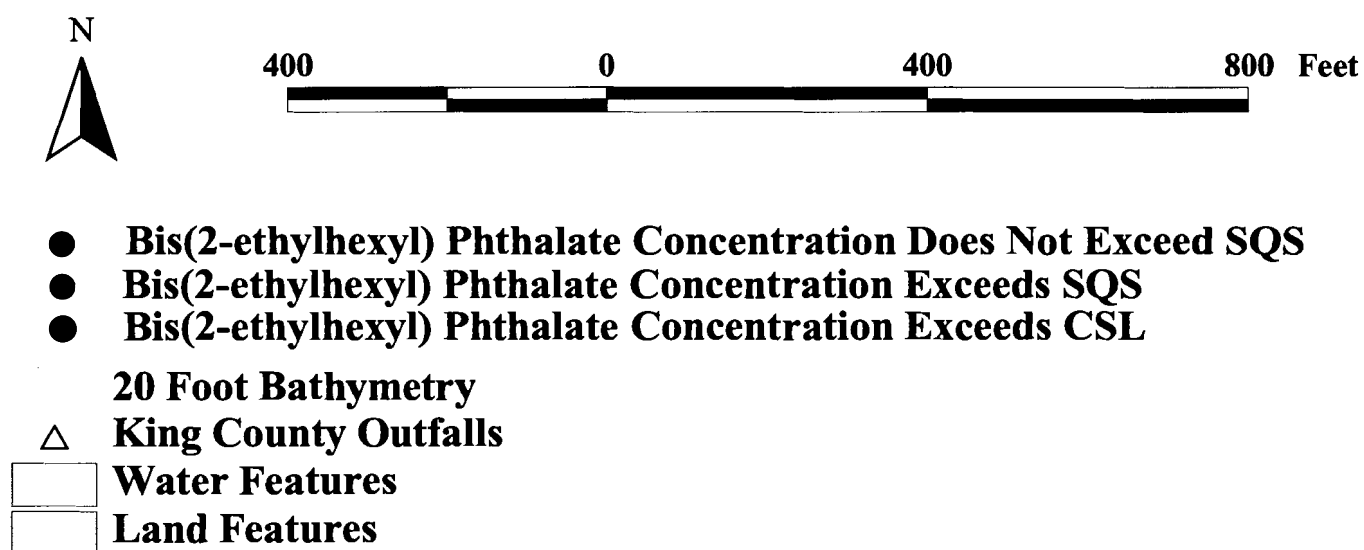
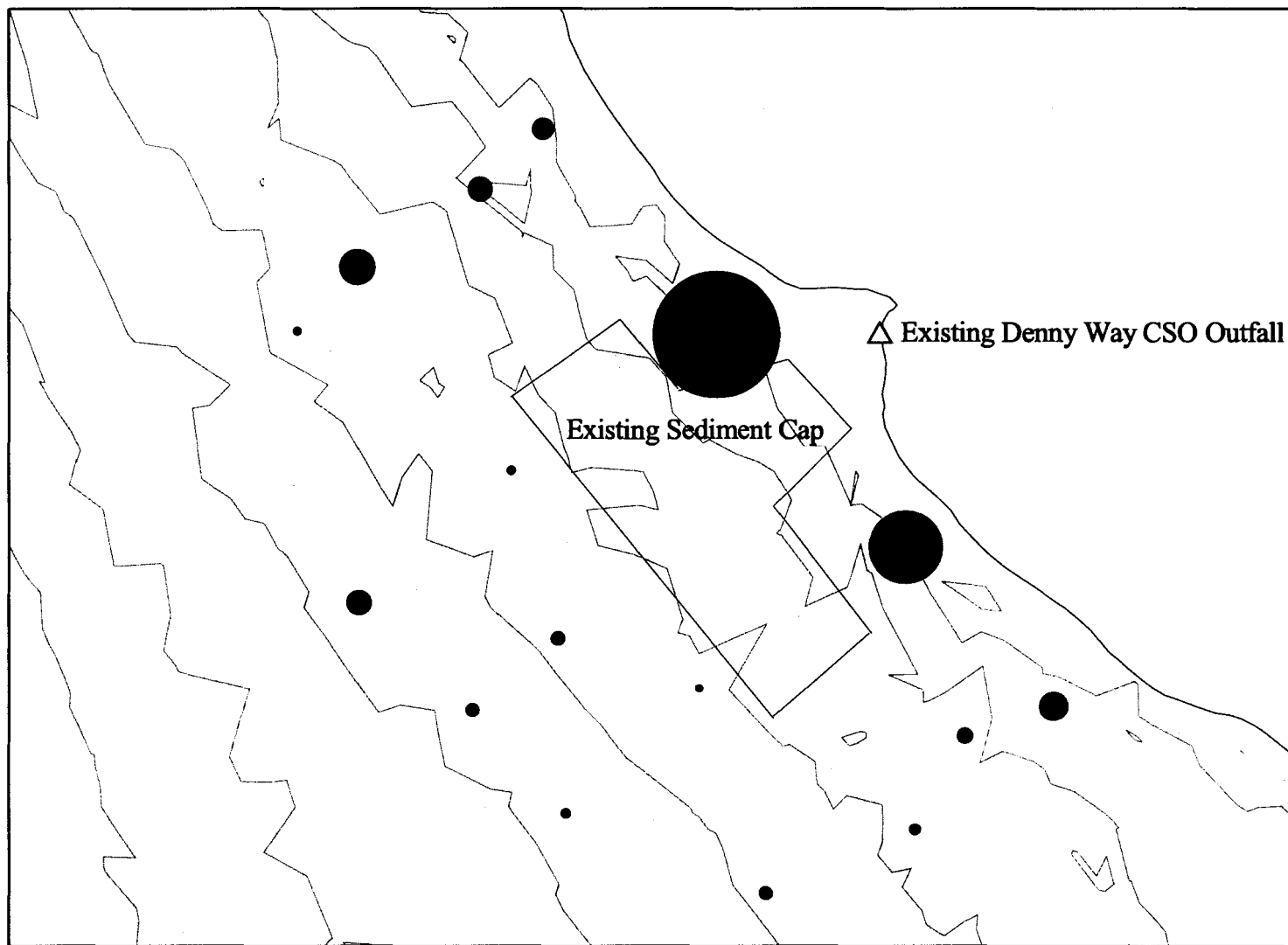
**20 Foot Bathymetry**

△ **King County Outfalls**

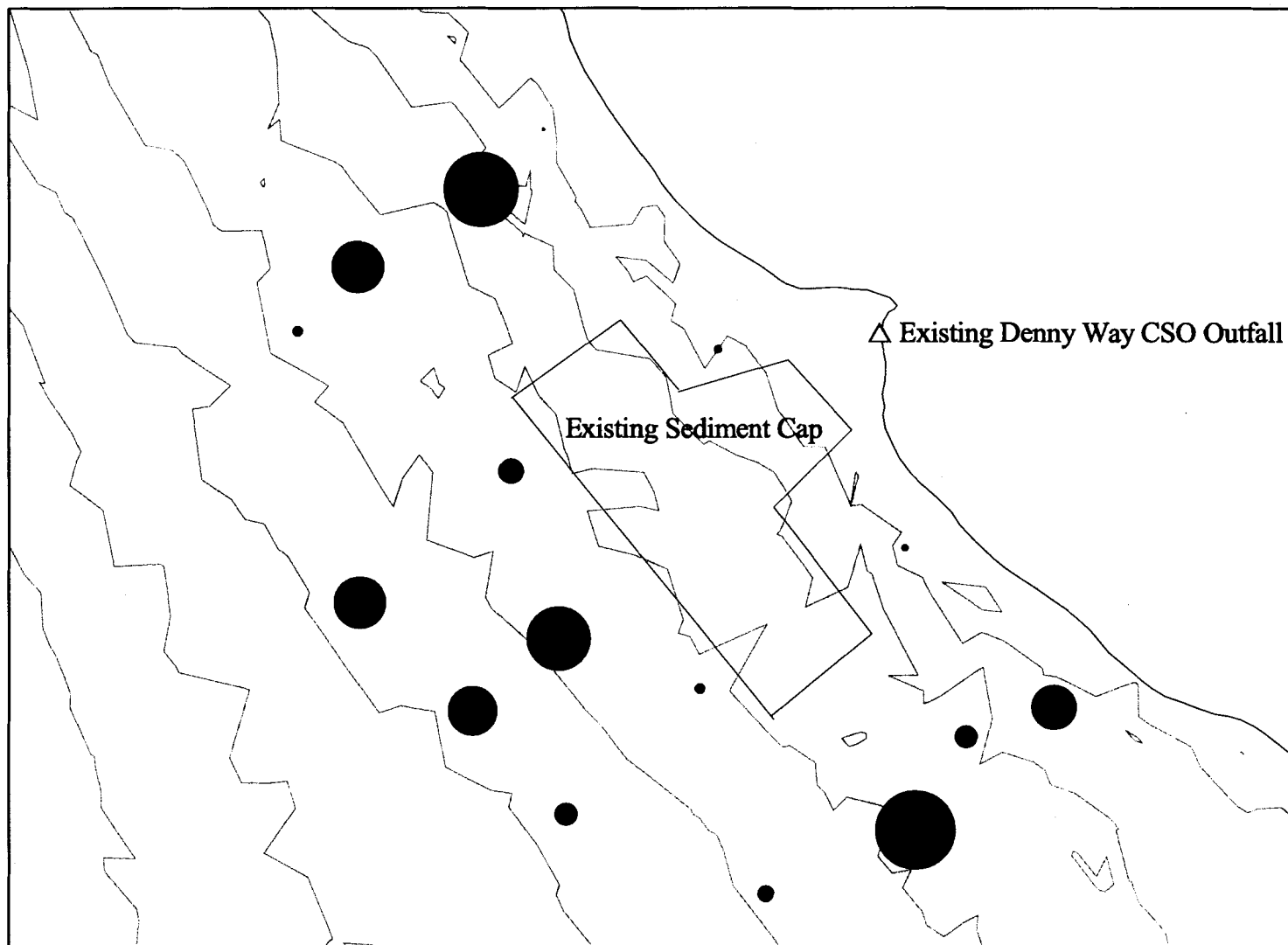
 **Water Features**

 **Land Features**

**Figure 4**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Relative Concentrations of Benzyl Butyl Phthalate**



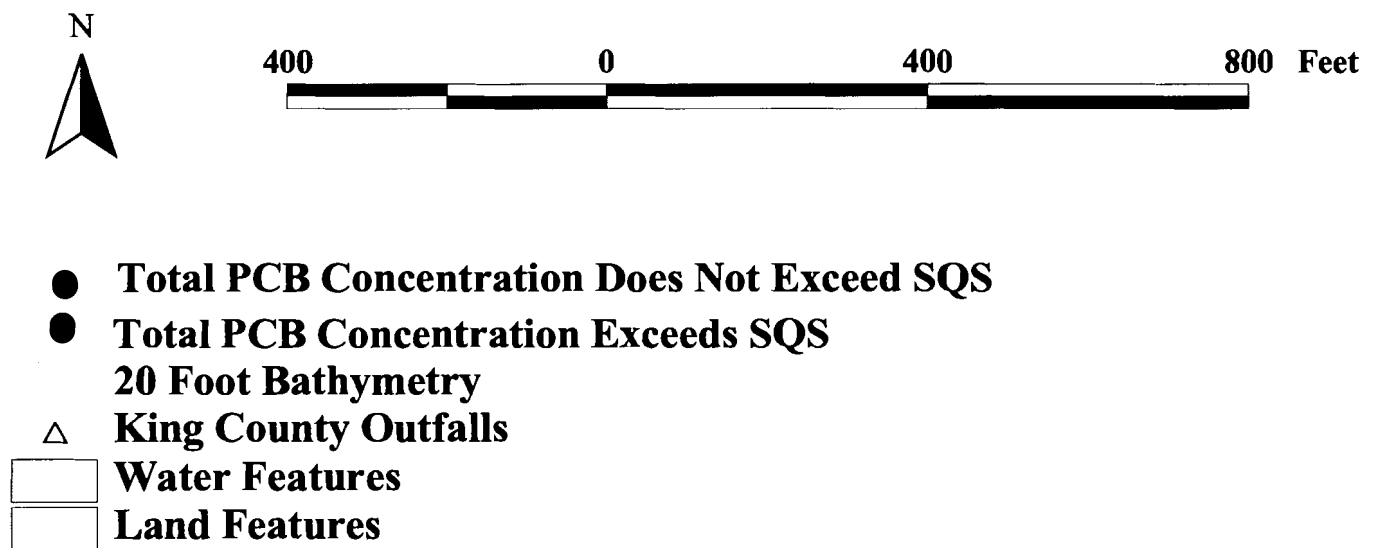
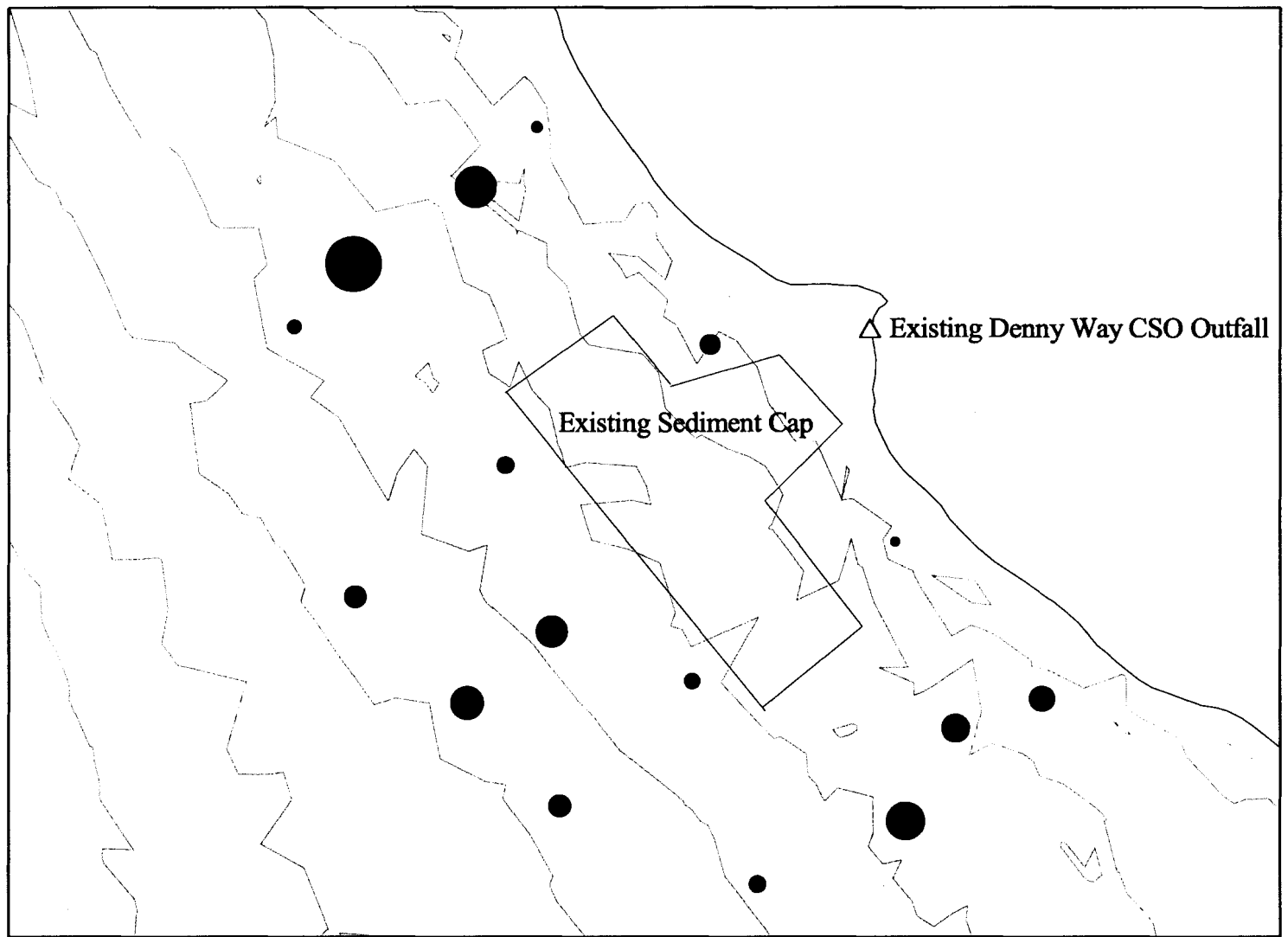
**Figure 5**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Relative Concentrations of Bis(2-ethylhexyl) Phthalate**



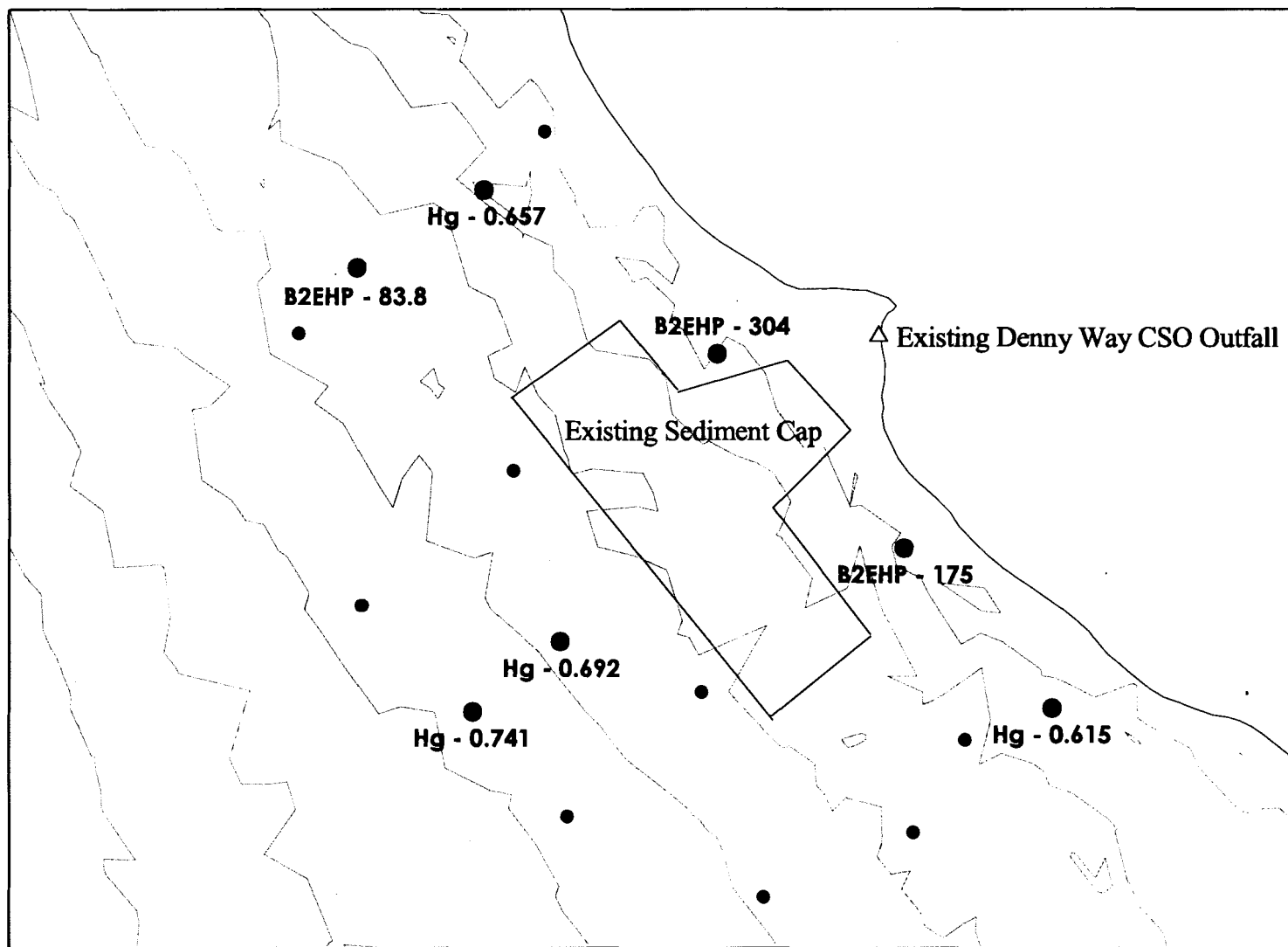
400 0 400 800 Feet



- Total DDT Concentration Does Not Exceed PSDDA Screening Level
- Total DDT Concentration Exceeds PSDDA Screening Level
- 20 Foot Bathymetry
- △ King County Outfalls
- Water Features
- Land Features

**Figure 6**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Relative Concentrations of Total DDT**



**Figure 7**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Relative Concentrations of Total PCBs**



- **Station Exceeds a CSL Criterion**  
 Hg = Mercury (mg/Kg dry weight)  
 B2EHP = Bis(2-ethylhexyl) Phthalate (mg/Kg organic carbon)
- **20 Foot Bathymetry**
- **Sediment Chemistry Stations**
- △ **King County Outfalls**
-  **Water Features**
-  **Land Features**

**Figure 8**  
**Denny Way/Lake Union CSO Control Project**  
**Pre-Construction Sediment Monitoring**  
**Stations Exceeding a CSL Chemical Criterion**

## TABLES



**Table 1**

**Sediment Chemistry Sample Location Coordinates**  
**Pre-Construction Sediment Characterization Study**  
**Denny Way/Lake Union CSO Control Project**

Station	Sampling Station Coordinates (State Plane NAD83)											
	Grab 1		Grab 2		Grab 3		Average		Prescribed		Off By (feet)	
	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting
DWMP-1	228811	1264048	228810	1264052	228810	1264052	228810	1264051	228813	1264047	3	4
DWMP-2	228771	1263916	228765	1263926	228772	1263923	228769	1263922	228770	1263919	1	3
DWMP-3	228644	1263845	228637	1263855	228637	1263855	228639	1263852	228638	1263846	1	6
DWMP-4	228557	1263631	228539	1263630	228552	1263638	228549	1263633	228546	1263631	3	2
DWMP-5	229037	1263840	229037	1263840	229032	1263838	229035	1263839	229041	1263836	6	3
DWMP-6	228845	1263543	228845	1263543	228851	1263538	228847	1263541	228839	1263542	8	1
DWMP-7	228656	1263346	228663	1263350	228658	1263351	228659	1263349	228660	1263350	1	1
DWMP-8	228911	1263326	228920	1263335	228914	1263336	228915	1263332	228907	1263341	8	9
DWMP-9	228815	1263210	228815	1263210	228809	1263219	228813	1263213	228806	1263215	7	2
DWMP-10*	229324	1263560	229321	1263567	229177	1263560	229274	1263562	229326	1263565	52	3
DWMP-11	229160	1263263	229161	1263283	229161	1263279	229161	1263275	229156	1263272	5	3
DWMP-12	228950	1263052	228949	1263054	228971	1263055	228957	1263054	228963	1263055	6	1
DWMP-13*	229635	1263320	229594	1263382	229539	1263411	229589	1263371	229640	1263317	51	54
DWMP-14	229553	1263226	229561	1263224	229561	1263224	229558	1263225	229553	1263228	5	3
DWMP-15	229449	1263053	229462	1263040	229440	1263055	229450	1263049	229444	1263053	6	4
DWMP-16	229347	1262981	229347	1262981	229356	1262964	229350	1262975	229353	1262966	3	9

\*Stations DWMP-10 and DWMP-13, both inshore stations, were relocated in the field due to shallow water depth that precluded sampling in the original locations.

05	DWMP-06	DWMP-07	DWMP-08	DWMP-09	DWMP-10	DWMP-11	DWMP-12	DWMP-13	DWMP-14	DWMP-15	DWMP-16	SQS/SL <sup>(1)</sup>	CSL/ML <sup>(2)</sup>
)	57.4	49.9	42.6	39.4	71.5	57.9	37.3	81.2	54.0	52.9	47.4	n/a	n/a
	2.67	2.49	3.40	3.31	1.79	3.25	3.32	1.12	3.33	2.76	2.76	n/a	n/a
	16,000	16,700	25,600	30,700	7,640	18,800	30,600	3,350	24,300	17,100	17,000	n/a	n/a
	9.8	15.0	17.2	19.0	1.7	8.7	23.0	1.3	12.5	17.7	20.6	n/a	n/a
	16.9	40.0	36.8	45.5	1.1	18.6	52.6	1.4	43.2	40.8	28.9	n/a	n/a
	70.3	44.2	43.0	31.8	96.8	71.8	23.7	57.2	44.0	40.0	34.1	n/a	n/a
	3.1	0.9	3.0	3.8	0.4	0.9	0.6	40.1	0.4	1.6	16.3	n/a	n/a
	1.86	2.97	2.70	3.22	4.78	2.06	3.35	3.19	3.22	2.40	2.13	n/a	n/a
	8.01	60.1	30.5	48.2	84.3	98.4	26.8	111	630	24.6	4.43	n/a	n/a
.0)	<MDL (2.6)	<MDL (3.0)	<MDL (3.5)	<MDL (3.8)	<MDL (2.1)	<MDL (2.6)	<MDL (4.0)	<MDL (1.8)	3.0	<MDL (2.8)	<MDL (3.2)	150	200
	7.5	9.4	9.4	12	6.2	6.6	16	<MDL (3.1)	9.4	9.8	12	57	93
20)	<MDL (0.26)	<MDL (0.30)	0.68	0.76	0.46	0.47	0.99	<MDL (0.18)	0.74	0.62	<MDL (0.32)	5.1	6.7
	27.4	40.9	46.2	50.5	41.7	27.1	55.0	17.0	47.8	52.2	62.2	260	270
	31.0	48.7	63.4	69.8	69.2	34.9	68.1	19.0	63.3	58.4	52.3	390	390
	27.0	48.9	98.1	73.4	99.7	34.4	89.8	13.7	90.2	73.2	42.6	450	530
	0.16	<b>0.411</b>	<b>0.692</b>	<b>0.741</b>	0.20	<b>0.477</b>	<b>0.571</b>	0.052	<b>0.657</b>	<b>0.524</b>	0.34	0.41	0.59
	25.3	34.5	40.8	45.7	30.3	24.2	52.3	20.7	41.5	48.6	65.2	140	370
	0.77	1.4	2.89	2.99	1.94	1.1	2.95	0.33	4.11	3.04	1.2	6.1	6.1
	70.7	77.8	112	105	96.1	77.7	118	35.0	106	107	101	410	960
.3)	<MDL (0.76)	1.1	<MDL (0.64)	<MDL (0.58)	<MDL (1.3)	<MDL (0.64)	<MDL (0.61)	<MDL (2.6)	<MDL (0.53)	<MDL (0.78)	0.88	16	57
	<MDL (1.6)	1.8	<MDL (1.4)	<MDL (1.2)	<MDL (2.7)	<MDL (1.4)	<MDL (1.3)	<MDL (5.5)	1.4	1.87	<MDL (1.9)	66	66
	4.74	7.84	3.31	2.25	6.20	2.30	1.94	8.54	3.72	3.65	5.15	220	1,200
	<MDL (1.4)	2.2	<MDL (1.2)	<MDL (1.1)	8.35	<MDL (1.2)	<MDL (1.1)	12.1	2.08	1.5	<MDL (1.6)	23	79
	<MDL (1.5)	<MDL (1.7)	<MDL (1.3)	<MDL (1.2)	<MDL (2.6)	<MDL (1.3)	<MDL (1.2)	<MDL (5.1)	<MDL (1.1)	<MDL (1.6)	<MDL (1.7)	38	64
	<MDL (1.5)	<MDL (1.7)	<MDL (1.3)	<MDL (1.2)	<MDL (2.6)	<MDL (1.3)	<MDL (1.2)	<MDL (5.1)	<MDL (1.1)	<MDL (1.6)	<MDL (1.7)	99	170
	6.69	11.3	4.38	1.64	11.0	1.98	0.49	4.60	2.05	2.27	9.88	100	480
	11.4	24	7.69	3.89	25.5	4.28	2.4	25.3	9.3	9.3	16	370	780
	8.63	13.4	5.16	2.21	11.0	2.30	0.990	4.90	1.77	2.25	9.59	110	270
	2.44	1.61	0.727	<MDL (0.25)	<MDL (0.55)	<MDL (0.28)	<MDL (0.26)	2.0	<MDL (0.23)	<MDL (0.33)	1.32	99	210
	<MDL (0.87)	<MDL (0.96)	<MDL (0.73)	<MDL (0.66)	<MDL (1.5)	<MDL (0.73)	<MDL (0.70)	<MDL (2.9)	<MDL (0.61)	<MDL (0.89)	<MDL (0.99)	31	78
	23.4	26.0	10.9	4.53	14.5	2.92	1.13	5.72	2.98	4.27	19.2	230	450
	10.8	12.9	4.57	1.96	6.66	1.40	0.56	4.96	1.22	1.65	10.8	110	460
	0.88	1.2	<MDL (0.64)	<MDL (0.58)	<MDL (1.3)	<MDL (0.64)	<MDL (0.61)	<MDL (2.6)	<MDL (0.53)	<MDL (0.78)	0.94	12	33
	17.2	24.0	9.80	4.01	25.8	4.42	1.49	7.61	3.88	4.53	18.4	160	1,200
	1.3	1.2	<MDL (0.83)	<MDL (0.74)	<MDL (1.6)	<MDL (0.83)	<MDL (0.79)	<MDL (3.3)	<MDL (0.69)	<MDL (1.0)	<MDL (1.1)	34	88
	7.56	5.72	2.14	0.984	3.76	0.745	<MDL (0.35)	<MDL (1.5)	0.617	0.70	3.39	1,000	1,400
	<b>72</b>	<b>86</b>	<b>33.3</b>	<b>13.7</b>	<b>61.8</b>	<b>11.8</b>	<b>4.2</b>	<b>25</b>	<b>10.5</b>	<b>13</b>	<b>64</b>	960	5,300
57)	2.67	3.67	<b>6.60</b>	3.07	<b>34.8</b>	3.21	<b>4.93</b>	<b>5.52</b>	<b>7.20</b>	<b>6.37</b>	1.89	4.9	64
	17.6	23.2	35.2	33.6	<b>304</b>	21.8	<b>61.1</b>	<b>54.0</b>	<b>61.3</b>	<b>83.6</b>	20.8	47	78
57)	<MDL (0.66)	<MDL (0.72)	<MDL (0.55)	<MDL (0.50)	<MDL (1.1)	<MDL (0.55)	<MDL (0.53)	<MDL (2.2)	<MDL (0.46)	<MDL (0.67)	<MDL (0.75)	61	110
.0)	<MDL (1.2)	<MDL (1.3)	<MDL (1.0)	<MDL (0.91)	2.56	<MDL (1.0)	<MDL (0.96)	<MDL (4.0)	<MDL (0.84)	<MDL (1.2)	<MDL (1.4)	53	53
75)	5.51	3.95	2.39	2.43	28.1	3.80	2.87	17.0	3.51	4.81	4.63	220	1,700
	<MDL (0.87)	<MDL (0.96)	<MDL (0.73)	<MDL (0.66)	<MDL (1.5)	<MDL (0.73)	<MDL (0.70)	<MDL (2.9)	<MDL (0.61)	<MDL (0.89)	<MDL (0.99)	58	4,500

	DWMP-01	DWMP-02	DWMP-03	DWMP-04	DWMP-05	DWMP-06	DWMP-07	DWMP-08	DWMP-09	DWMP-10	DWMP-11
<b>Miscellaneous</b>											
Dibenzofuran	1.7	3.0	<MDL (1.3)	<MDL (1.8)	2.5	<MDL (1.5)	<MDL (1.7)	<MDL (1.3)	<MDL (1.2)	<MDL (2.6)	<MDL (1.3)
Hexachlorobutadiene	<MDL (0.058)	<MDL (0.098)	<MDL (0.070)	<MDL (0.094)	<MDL (0.071)	<MDL (0.082)	<MDL (0.090)	<MDL (0.069)	<MDL (0.062)	<MDL (0.14)	<MDL (0.069)
Hexachloroethane <sup>(4)</sup>	<MDL (38)	<MDL (25)	<MDL (34)	<MDL (30)	<MDL (20)	<MDL (26)	<MDL (30)	<MDL (35)	<MDL (38)	<MDL (21)	<MDL (26)
N-Nitrosodiphenylamine	<MDL (1.6)	<MDL (2.6)	<MDL (1.9)	<MDL (2.5)	<MDL (1.9)	<MDL (2.2)	<MDL (2.4)	<MDL (1.8)	<MDL (1.7)	<MDL (3.7)	<MDL (1.8)
<b>PCBs</b>											
Total PCBs	<b>16.1</b>	<b>18.2</b>	<b>24.2</b>	11.0	6.19	10.3	<b>13.8</b>	<b>19.6</b>	<b>21.4</b>	<b>13.0</b>	10.7
<b>Ionic Organics (µg/Kg DW)</b>											
Benzoic Acid	392	239	215	256	338	174	206	303	248	173	226
Benzyl Alcohol	<MDL (15)	<MDL (10)	<MDL (14)	<MDL (12)	<MDL (8.0)	<MDL (10)	<MDL (12)	<MDL (14)	<MDL (15)	<MDL (8.4)	<MDL (10)
2-Methylphenol	<MDL (49)	<MDL (32)	<MDL (43)	<MDL (38)	<MDL (25)	<MDL (33)	<MDL (38)	<MDL (45)	<MDL (48)	<MDL (27)	<MDL (33)
4-Methylphenol	<MDL (41)	<MDL (27)	<MDL (36)	<MDL (32)	<MDL (21)	<MDL (28)	<MDL (32)	<MDL (38)	<MDL (41)	<MDL (22)	<MDL (28)
2,4-Dimethylphenol	<MDL (18)	<MDL (12)	<MDL (16)	<MDL (14)	<MDL (9.4)	<MDL (12)	<MDL (14)	<MDL (16)	<MDL (18)	<MDL (9.8)	<MDL (12)
Pentachlorophenol	<MDL (13)	<MDL (8.4)	<MDL (11)	<MDL (9.9)	<MDL (6.7)	<MDL (8.7)	<MDL (10)	<MDL (12)	<MDL (13)	<MDL (7.0)	<MDL (8.6)
Phenol	<MDL (23)	<MDL (15)	<MDL (20)	<MDL (18)	<MDL (12)	<MDL (16)	<MDL (18)	<MDL (21)	<MDL (23)	<MDL (13)	<MDL (16)
<b>Pesticides (µg/Kg DW)</b>											
4,4'-DDD	11.6	5.95	21.9	4.44	1.58	2.60	6.47	17.1	13.2	1.89	6.86
4,4'-DDE	2.15	0.926	2.52	0.56	0.37	0.56	0.74	2.65	1.97	0.38	0.927
4,4'-DDT	<MDL (0.69)	<MDL (0.45)	<MDL (0.61)	<MDL (0.54)	<MDL (0.36)	<MDL (0.47)	<MDL (0.54)	<MDL (0.63)	<MDL (0.69)	<MDL (0.38)	<MDL (0.47)
Total DDT	<b>13.8</b>	<b>6.88</b>	<b>24.4</b>	5.0	2.0	3.2	<b>7.2</b>	<b>19.8</b>	<b>15.2</b>	2.3	<b>7.79</b>
Aldrin	<MDL (0.69)	<MDL (0.45)	<MDL (0.61)	<MDL (0.54)	<MDL (0.36)	<MDL (0.47)	<MDL (0.54)	<MDL (0.63)	<MDL (0.69)	<MDL (0.38)	<MDL (0.47)
Chlordane	<MDL (2.6)	<MDL (0.45)	<MDL (2.3)	<MDL (0.54)	<MDL (0.36)	<MDL (0.47)	<MDL (2.0)	<MDL (2.3)	<MDL (2.5)	<MDL (0.38)	<MDL (0.47)
Dieldrin	<MDL (0.69)	<MDL (0.45)	<MDL (0.61)	<MDL (0.54)	<MDL (0.36)	<MDL (0.47)	<MDL (0.54)	<MDL (0.63)	<MDL (0.69)	<MDL (0.38)	<MDL (0.47)
Gamma-BHC (Lindane)	<MDL (0.69)	<MDL (0.45)	<MDL (0.61)	<MDL (0.54)	<MDL (0.36)	<MDL (0.47)	<MDL (0.54)	<MDL (0.63)	<MDL (0.69)	<MDL (0.38)	<MDL (0.47)
Heptachlor	<MDL (0.69)	<MDL (0.45)	<MDL (0.61)	<MDL (0.54)	<MDL (0.36)	<MDL (0.47)	<MDL (0.54)	<MDL (0.63)	<MDL (0.69)	<MDL (0.38)	<MDL (0.47)
<b>Volatile Organics (µg/Kg DW)</b>											
Ethylbenzene	<MDL (13)	<MDL (8.4)	<MDL (11)	<MDL (9.9)	<MDL (6.7)	<MDL (8.7)	<MDL (10)	<MDL (12)	<MDL (13)	<MDL (7.0)	<MDL (8.6)
Trichloroethene (TCE)	<MDL (13)	<MDL (8.4)	<MDL (11)	<MDL (9.9)	<MDL (6.7)	<MDL (8.7)	<MDL (10)	<MDL (12)	<MDL (13)	<MDL (7.0)	<MDL (8.6)
Tetrachloroethene (PCE)	<MDL (13)	<MDL (8.4)	<MDL (11)	<MDL (9.9)	<MDL (6.7)	<MDL (8.7)	<MDL (10)	<MDL (12)	<MDL (13)	<MDL (7.0)	<MDL (8.6)
Total Xylenes	<MDL (13)	<MDL (8.4)	<MDL (11)	<MDL (9.9)	<MDL (6.7)	<MDL (8.7)	<MDL (10)	<MDL (12)	<MDL (13)	<MDL (7.0)	<MDL (8.6)

#### Notes

- (1) - Criteria from Chapter 173-204 WAC - Sediment Quality Standard (SQS) values with the exception of antimony, nickel, 1,3-dichlorobenzene, hexachloroethane, pesticides, and
  - (2) -
  - (3) - Maximum Level criterion not provided. Numeric criterion is PSDDA Bioaccumulation Trigger (BT).
  - (4) - Analytical results provided in **µg/Kg DW** (not mg/Kg OC) for comparison to dry weight PSDDA criteria.
- mg/Kg DW - Milligrams per kilogram normalized to dry weight (based on sample-specific percent solids analysis).  
µg/Kg DW - Micrograms per kilogram normalized to dry weight (based on sample-specific percent solids analysis).  
mg/Kg OC - Milligrams per kilogram normalized to organic carbon (based on sample-specific total organic carbon analysis).  
n/a - Not applicable (no criterion given).  
<MDL (#) - Analytical result is less than the Method Detection Limit (MDL). Value in parentheses is numeric MDL.
- LPAHs - Low molecular weight polynuclear aromatic hydrocarbons.  
HPAHs - High molecular weight polynuclear aromatic hydrocarbons.  
PCBs - Polychlorinated biphenyls.
- Shaded Cell (gray) - MDL exceeds SQS/SL or CSL/ML criterion.  
Highlighted Cell (yellow) - Analytical result exceeds SQS/SL criterion.  
Highlighted Cell (blue) - Analytical result exceeds CSL/ML criterion.

**APPENDIX A**  
**COMPLETE CHEMISTRY ANALYTICAL RESULTS**

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-01  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-1  
 Matrix: SALTWTRSED  
 % Solids: 39

Locator: DWMP-02  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-2  
 Matrix: SALTWTRSED  
 % Solids: 59.5

Locator: DWMP-03  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-3  
 Matrix: SALTWTRSED  
 % Solids: 44.1

Locator: DWMP-04  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-4  
 Matrix: SALTWTRSED  
 % Solids: 50.4

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis
<b>COMBINED LABS</b>																				
<b>M=CV ASTM D422</b>																				
Clay *	17.8		0.1		%	11.4		0.1		%	17.1		0.1		%	15.6		0.1		%
Gravel *	7.7		0.1		%	5.3		0.1		%	0.75		0.1		%	9.4		0.1		%
p+0.00 *	4.7		0.1		%	3.1		0.1		%	3.6		0.1		%	5.1		0.1		%
p+1.00 *	3.7		0.1		%	6.4		0.1		%	4.3		0.1		%	5.9		0.1		%
p+10.0 *	4.7		0.1		%	2.6		0.1		%	3.7		0.1		%	3.5		0.1		%
p+10.0(more than) *	8.7		0.1		%	5.5		0.1		%	8.2		0.1		%	7.5		0.1		%
p+2.00 *	4.5		0.1		%	15.5		0.1		%	12.2		0.1		%	9.8		0.1		%
p+3.00 *	7.6		0.1		%	17		0.1		%	10.7		0.1		%	10.9		0.1		%
p+4.00 *	9.6		0.1		%	14		0.1		%	10.1		0.1		%	8.4		0.1		%
p+5.00 *	16.1		0.1		%	11.8		0.1		%	13.8		0.1		%	11		0.1		%
p+6.00 *	12.5		0.1		%	7		0.1		%	12.9		0.1		%	10.8		0.1		%
p+7.00 *	9.4		0.1		%	4.8		0.1		%	8.8		0.1		%	7		0.1		%
p+8.00 *	6.4		0.1		%	3.7		0.1		%	5.8		0.1		%	6.2		0.1		%
p+9.00 *	4.4		0.1		%	3.3		0.1		%	5.2		0.1		%	4.6		0.1		%
p-1.00 *	4.1		0.1		%	2.5		0.1		%	0.75		0.1		%	7		0.1		%
p-2.00 *	3.6		0.1		%	2.8		0.1		%	<MDL		0.1		%	2.4		0.1		%
p-2.00(less than) *	<MDL		0.1		%	<MDL		0.1		%	<MDL		0.1		%	<MDL		0.1		%
Sand *	30.1		0.1		%	56		0.1		%	40.9		0.1		%	40.1		0.1		%
Silt *	44.4		0.1		%	27.3		0.1		%	41.3		0.1		%	35		0.1		%
<b>M=CV EPA9060-PSEP96 (03-04-002-001)</b>																				
Total Organic Carbon	33100		1300	2560	mg/Kg	12800		840	1680	mg/Kg	24300		1100	2270	mg/Kg	15800		990	1980	mg/Kg
<b>M=CV SM2540-G (03-01-007-001)</b>																				
Total Solids *	39		0.005	0.01	%	59.5		0.005	0.01	%	44.1		0.005	0.01	%	50.4		0.005	0.01	%
Total Volatile Solids	13.3		0.0128	0.0256	%	4.77		0.0084	0.0168	%	7.28		0.0113	0.0227	%	5.3		0.00992	0.0198	%
<b>M=CV SM4500-NH3-G (03-03-004-001)</b>																				
Ammonia Nitrogen	8.97		0.64	1.28	mg/Kg	2.24		0.42	0.84	mg/Kg	2.81		0.57	1.13	mg/Kg	2.22		0.5	0.992	mg/Kg
<b>M=CV SM4500S2-D, EPA378.2</b>																				
Total Sulfide	256		28	28.2	mg/Kg	7.56		1.5	1.5	mg/Kg	27.2		2.5	2.49	mg/Kg	9.33		2	1.98	mg/Kg
<b>M=ES NONE</b>																				
Sampcoordx1 *	1264048				ft	1263916				ft	1263845				ft	1263631				ft
Sampcoordx2 *	1264052				ft	1263926				ft	1263855				ft	1263630				ft
Sampcoordx3 *						1263923				ft						1263638				ft
Sampcoordy1 *	228811				ft	228771				ft	228644				ft	228557				ft
Sampcoordy2 *	228810				ft	228765				ft	228637				ft	228539				ft
Sampcoordy3 *						228772				ft						228552				ft
Sample Depth *	9				m	12				m	16				m	23				m
Sample Start Time *	1006				hr	1057				hr	1222				hr	1330				hr
Sediment Sampling Depth *	11				cm	10				cm	17				cm	14				cm
Sediment Sampling Range *	0-2 cm				none	0-2 cm				none	0-2 cm				none	0-2 cm				none
Sediment Type	23P30				none	23P30				none	23N20				none	23N20				none

# King County Environmental Lab Analytical Report

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 Matrix: SALTWTRSED  
 % Solids: 39

Locator: DWMP-02  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-2  
 Matrix: SALTWTRSED  
 % Solids: 59.5

Locator: DWMP-03  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-3  
 Matrix: SALTWTRSED  
 % Solids: 44.1

Locator: DWMP-04  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-4  
 Matrix: SALTWTRSED  
 % Solids: 50.4

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
<b>COMBINED LABS</b>																				
Tidal Condition	E				none	E				none	S				none	S				none
Tide Height *	5				ft	2				ft	-0.1				ft	-0.1				ft
<b>M=MT EPA 245.5 (06-01-004-003)</b>																				
Mercury, Total, CVAA	0.615		0.051	0.503	mg/Kg	0.29	<RDL	0.034	0.331	mg/Kg	0.567		0.045	0.444	mg/Kg	0.38	<RDL	0.04	0.395	mg/Kg
<b>M=MT EPA3050A/6010B (06-02-004-002)</b>																				
Antimony, Total, ICP	<MDL,G		3.8	19.3	mg/Kg	<MDL,G		2.5	12.4	mg/Kg	<MDL,G		3.4	17	mg/Kg	<MDL,G		2.8	14.2	mg/Kg
Arsenic, Total, ICP	15	<RDL	6.4	32.1	mg/Kg	7.6	<RDL	4.2	20.7	mg/Kg	9.8	<RDL	5.7	28.3	mg/Kg	11	<RDL	4.8	23.8	mg/Kg
Cadmium, Total, ICP	0.72	<RDL,L	0.38	1.93	mg/Kg	0.34	<RDL,L	0.25	1.24	mg/Kg	1	<RDL,L	0.34	1.7	mg/Kg	0.28	<RDL,L	0.28	1.42	mg/Kg
Chromium, Total, ICP	49.5		0.64	3.21	mg/Kg	40.5		0.42	2.07	mg/Kg	42		0.57	2.83	mg/Kg	46.8		0.48	2.38	mg/Kg
Copper, Total, ICP	83.6		0.51	2.56	mg/Kg	42.5		0.34	1.65	mg/Kg	62.6		0.45	2.27	mg/Kg	48		0.38	1.9	mg/Kg
Lead, Total, ICP	118		3.8	19.3	mg/Kg	67.6		2.5	12.4	mg/Kg	73		3.4	17	mg/Kg	47.6		2.8	14.2	mg/Kg
Nickel, Total, ICP	38.7		2.6	12.8	mg/Kg	36		1.6	8.25	mg/Kg	39		2.3	11.3	mg/Kg	46.4		1.9	9.48	mg/Kg
Silver, Total, ICP	3.26		0.51	2.52	mg/Kg	2.05		0.34	1.66	mg/Kg	2.34		0.43	2.21	mg/Kg	1.2	<RDL	0.38	1.9	mg/Kg
Zinc, Total, ICP	136		0.64	3.21	mg/Kg	88.9		0.42	2.07	mg/Kg	108		0.57	2.83	mg/Kg	90.1		0.48	2.38	mg/Kg
<b>M=OR EPA 3550B/8270C (7-3-01-004)</b>																				
1,2,4-Trichlorobenzene	<MDL,G		0.67	1.36	ug/Kg	<MDL,G		0.44	0.891	ug/Kg	<MDL,G		0.59	1.2	ug/Kg	<MDL,G		0.52	1.05	ug/Kg
1,2-Dichlorobenzene	<MDL,G		0.67	1.36	ug/Kg	<MDL,G		0.44	0.891	ug/Kg	<MDL,G		0.59	1.2	ug/Kg	<MDL,G		0.52	1.05	ug/Kg
1,2-Diphenylhydrazine	<MDL		26	51.3	ug/Kg	<MDL		17	33.6	ug/Kg	<MDL		23	45.4	ug/Kg	<MDL		20	39.7	ug/Kg
1,3-Dichlorobenzene	<MDL,X		0.67	1.36	ug/Kg	<MDL,X		0.44	0.891	ug/Kg	<MDL,X		0.59	1.2	ug/Kg	<MDL,X		0.52	1.05	ug/Kg
1,4-Dichlorobenzene	<MDL,G		0.33	0.677	ug/Kg	<MDL,G		0.22	0.444	ug/Kg	<MDL,G		0.29	0.599	ug/Kg	<MDL,G		0.26	0.524	ug/Kg
2,4,5-Trichlorophenol	<MDL		31	61.5	ug/Kg	<MDL		20	40.3	ug/Kg	<MDL,G		27	54.4	ug/Kg	<MDL		24	47.6	ug/Kg
2,4,6-Trichlorophenol	<MDL		33	66.7	ug/Kg	<MDL		22	43.7	ug/Kg	<MDL,G		29	59	ug/Kg	<MDL		26	51.6	ug/Kg
2,4-Dichlorophenol	<MDL		41	82.1	ug/Kg	<MDL		27	53.8	ug/Kg	<MDL,G		36	72.6	ug/Kg	<MDL		32	63.5	ug/Kg
2,4-Dimethylphenol	<MDL		18	35.9	ug/Kg	<MDL		12	23.5	ug/Kg	<MDL,G		16	31.7	ug/Kg	<MDL		14	27.8	ug/Kg
2,4-Dinitrotoluene	<MDL,L		7.7	15.4	ug/Kg	<MDL,L		5	10.1	ug/Kg	<MDL,L		6.8	13.6	ug/Kg	<MDL,L		6	11.9	ug/Kg
2,6-Dinitrotoluene	<MDL,L		26	51.3	ug/Kg	<MDL,L		17	33.6	ug/Kg	<MDL,L		23	45.4	ug/Kg	<MDL,L		20	39.7	ug/Kg
2-Chloronaphthalene	<MDL		41	82.1	ug/Kg	<MDL		27	53.8	ug/Kg	<MDL		36	72.6	ug/Kg	<MDL		32	63.5	ug/Kg
2-Chlorophenol	<MDL,G		21	41	ug/Kg	<MDL,G		13	26.9	ug/Kg	<MDL,G		18	36.3	ug/Kg	<MDL,G		16	31.7	ug/Kg
2-Methylnaphthalene	51	<RDL	36	71.8	ug/Kg	30	<RDL	24	47.1	ug/Kg	<MDL		32	63.5	ug/Kg	<MDL		28	55.6	ug/Kg
2-Methylphenol	<MDL		49	97.4	ug/Kg	<MDL		32	63.9	ug/Kg	<MDL,G		43	86.2	ug/Kg	<MDL		38	75.4	ug/Kg
2-Nitrophenol	<MDL		38	76.9	ug/Kg	<MDL		25	50.4	ug/Kg	<MDL,G		34	68	ug/Kg	<MDL		30	59.5	ug/Kg
4-Bromophenyl Phenyl Ether	<MDL		23	46.2	ug/Kg	<MDL		15	30.3	ug/Kg	<MDL		20	40.8	ug/Kg	<MDL		18	35.7	ug/Kg
4-Chlorophenyl Phenyl Ether	<MDL		33	66.7	ug/Kg	<MDL		22	43.7	ug/Kg	<MDL		29	59	ug/Kg	<MDL		26	51.6	ug/Kg
4-Methylphenol	<MDL		41	82.1	ug/Kg	<MDL		27	53.8	ug/Kg	<MDL,G		36	72.6	ug/Kg	<MDL		32	63.5	ug/Kg
Acenaphthene	103		18	35.9	ug/Kg	71.8		12	23.5	ug/Kg	92.1		16	31.7	ug/Kg	22	<RDL	14	27.8	ug/Kg
Acenaphthylene	285		38	76.9	ug/Kg	50.4	RDL	25	50.4	ug/Kg	43	<RDL	34	68	ug/Kg	<MDL		30	59.5	ug/Kg
Aniline	<MDL,X		49	97.4	ug/Kg	<MDL,X		32	63.9	ug/Kg	<MDL,X		43	86.2	ug/Kg	<MDL,X		38	75.4	ug/Kg
Anthracene	1500	G	10	20.5	ug/Kg	373	G	6.7	13.4	ug/Kg	447	G	9.1	18.1	ug/Kg	152	G	7.9	15.9	ug/Kg
Benzo(a)anthracene	3560	X	5.1	10.3	ug/Kg	753	X	3.4	6.72	ug/Kg	601	X	4.5	9.07	ug/Kg	308	X	4	7.94	ug/Kg
Benzo(a)pyrene	5740	X	7.7	15.4	ug/Kg	810	X	5	10.1	ug/Kg	612	X	6.8	13.6	ug/Kg	405	X	6	11.9	ug/Kg
Benzo(b)fluoranthene	8260	X,L	7.7	15.4	ug/Kg	1000	X,L	5	10.1	ug/Kg	782	X,L	6.8	13.6	ug/Kg	415	X,L	6	11.9	ug/Kg

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 % Solids: 39

Locator: DWMP-02  
 Descrp: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-2  
 Matrix: SALTWTRSED  
 % Solids: 59.5

Locator: DWMP-03  
 Descrp: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-3  
 Matrix: SALTWTRSED  
 % Solids: 44.1

Locator: DWMP-04  
 Descrp: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-4  
 Matrix: SALTWTRSED  
 % Solids: 50.4

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
	- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis				
COMBINED LABS																				
Benzo(g,h,i)perylene	2280	X,G	21	41	ug/Kg	287	X,G	13	26.9	ug/Kg	182	X,G	18	36.3	ug/Kg	113	X,G	16	31.7	ug/Kg
Benzo(k)fluoranthene	2720	G,L	7.7	15.4	ug/Kg	402	G,L	5	10.1	ug/Kg	342	G,L	6.8	13.6	ug/Kg	240	G,L	6	11.9	ug/Kg
Benzoic Acid	392		15	30.8	ug/Kg	239		10	20.2	ug/Kg	215	G	14	27.2	ug/Kg	256		12	23.8	ug/Kg
Benzyl Alcohol	<MDL,X		15	30.8	ug/Kg	<MDL,X		10	20.2	ug/Kg	<MDL,X		14	27.2	ug/Kg	<MDL,X		12	23.8	ug/Kg
Benzyl Butyl Phthalate	397	L	15	30.8	ug/Kg	178	L	10	20.2	ug/Kg	109	L	14	27.2	ug/Kg	105	L	12	23.8	ug/Kg
Bis(2-Chloroethoxy)Methane	<MDL		44	87.2	ug/Kg	<MDL		29	57.1	ug/Kg	<MDL		39	77.1	ug/Kg	<MDL		34	67.5	ug/Kg
Bis(2-Chloroethyl)Ether	<MDL,G		38	76.9	ug/Kg	<MDL,G		25	50.4	ug/Kg	<MDL,G		34	68	ug/Kg	<MDL,G		30	59.5	ug/Kg
Bis(2-Chloroisopropyl)Ether	<MDL		38	76.9	ug/Kg	<MDL		25	50.4	ug/Kg	<MDL		34	68	ug/Kg	<MDL		30	59.5	ug/Kg
Bis(2-Ethylhexyl)Phthalate	2380	G	17	35.9	ug/Kg	503	G	11	23.5	ug/Kg	637	G	15	31.7	ug/Kg	510	G	13	27.8	ug/Kg
Caffeine	<MDL		15	30.8	ug/Kg	<MDL		10	20.2	ug/Kg	<MDL		14	27.2	ug/Kg	<MDL		12	23.8	ug/Kg
Carbazole	349		18	35.9	ug/Kg	132		12	23.5	ug/Kg	106		16	31.7	ug/Kg	46.6		14	27.8	ug/Kg
Chrysene	6820	X,L	10	20.5	ug/Kg	980	X,L	6.7	13.4	ug/Kg	669	X,L	9.1	18.1	ug/Kg	405	X,L	7.9	15.9	ug/Kg
Coprostanol	<MDL,X		36	71.8	ug/Kg	<MDL,X		24	47.1	ug/Kg	<MDL,X		32	63.5	ug/Kg	<MDL,X		28	55.6	ug/Kg
Dibenzo(a,h)anthracene	305	G,L	18	35.9	ug/Kg	79.7	G,L	12	23.5	ug/Kg	58.3	G,L	16	31.7	ug/Kg	39.1	G,L	14	27.8	ug/Kg
Dibenzofuran	56	<RDL	36	71.8	ug/Kg	39	<RDL	24	47.1	ug/Kg	<MDL		32	63.5	ug/Kg	<MDL		28	55.6	ug/Kg
Diethyl Phthalate	18	<RDL	15	30.8	ug/Kg	<MDL		10	20.2	ug/Kg	<MDL		14	27.2	ug/Kg	<MDL		12	23.8	ug/Kg
Dimethyl Phthalate	<MDL,L		28	56.4	ug/Kg	<MDL,L		18	37	ug/Kg	<MDL,L		25	49.9	ug/Kg	<MDL,L		22	43.7	ug/Kg
Di-N-Butyl Phthalate	111	B,L	13	25.6	ug/Kg	72.6	B,L	8.4	16.8	ug/Kg	67.8	B,L	11	22.7	ug/Kg	75.2	B,L	9.9	19.8	ug/Kg
Di-N-Octyl Phthalate	<MDL,L		21	41	ug/Kg	<MDL,L		13	26.9	ug/Kg	<MDL,L		18	36.3	ug/Kg	<MDL,L		16	31.7	ug/Kg
Fluoranthene	4230	X	21	41	ug/Kg	1830	X	13	26.9	ug/Kg	1120	X	18	36.3	ug/Kg	464	X	16	31.7	ug/Kg
Fluorene	174		33	66.7	ug/Kg	102		22	43.7	ug/Kg	118		29	59	ug/Kg	28	<RDL	26	51.6	ug/Kg
Hexachlorobenzene	<MDL,G		1.7	3.41	ug/Kg	<MDL,G		1.1	2.24	ug/Kg	<MDL,G		1.5	3.02	ug/Kg	<MDL,G		1.3	2.64	ug/Kg
Hexachlorobutadiene	<MDL,G		1.9	3.85	ug/Kg	<MDL,G		1.3	2.52	ug/Kg	<MDL,G		1.7	3.4	ug/Kg	<MDL,G		1.5	2.98	ug/Kg
Hexachloroethane	<MDL,X		38	76.9	ug/Kg	<MDL,X		25	50.4	ug/Kg	<MDL,X		34	68	ug/Kg	<MDL,X		30	59.5	ug/Kg
Indeno(1,2,3-Cd)Pyrene	2670	X	23	46.2	ug/Kg	368	X	15	30.3	ug/Kg	234	X	20	40.8	ug/Kg	161	X	18	35.7	ug/Kg
Isophorone	<MDL		49	97.4	ug/Kg	<MDL		32	63.9	ug/Kg	<MDL		43	86.2	ug/Kg	<MDL		38	75.4	ug/Kg
Naphthalene	56	<RDL,G	36	71.8	ug/Kg	32	<RDL,G	24	47.1	ug/Kg	<MDL,G		32	63.5	ug/Kg	<MDL,G		28	55.6	ug/Kg
Nitrobenzene	<MDL,G		41	82.1	ug/Kg	<MDL,G		27	53.8	ug/Kg	<MDL,G		36	72.6	ug/Kg	<MDL,G		32	63.5	ug/Kg
N-Nitrosodimethylamine	<MDL		51	103	ug/Kg	<MDL		34	67.2	ug/Kg	<MDL		45	90.7	ug/Kg	<MDL		40	79.4	ug/Kg
N-Nitrosodi-N-Propylamine	<MDL		23	46.2	ug/Kg	<MDL		15	30.3	ug/Kg	<MDL		20	40.8	ug/Kg	<MDL		18	35.7	ug/Kg
N-Nitrosodiphenylamine	<MDL		51	103	ug/Kg	<MDL		34	67.2	ug/Kg	<MDL		45	90.7	ug/Kg	<MDL		40	79.4	ug/Kg
Pentachlorophenol	<MDL		13	25.6	ug/Kg	<MDL		8.4	16.8	ug/Kg	<MDL,G		11	22.7	ug/Kg	<MDL		9.9	19.8	ug/Kg
Phenanthrene	1940	X,G	10	20.5	ug/Kg	1030	X,G	6.7	13.4	ug/Kg	760	X,G	9.1	18.1	ug/Kg	232	X,G	7.9	15.9	ug/Kg
Phenol	<MDL		23	46.2	ug/Kg	<MDL		15	30.3	ug/Kg	<MDL,G		20	40.8	ug/Kg	<MDL		18	35.7	ug/Kg
Pyrene	4690	X,G	10	20.5	ug/Kg	1250	X,G	6.7	13.4	ug/Kg	1050	X,G	9.1	18.1	ug/Kg	407	X,G	7.9	15.9	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD	11.6		0.69	1.37	ug/Kg	5.95	E	0.45	0.896	ug/Kg	21.9	E	0.61	1.21	ug/Kg	4.44	E	0.54	1.06	ug/Kg
4,4'-DDE	2.15	G	0.69	1.37	ug/Kg	0.926	G,E	0.45	0.896	ug/Kg	2.52	G,E	0.61	1.21	ug/Kg	0.56	<RDL,G,E	0.54	1.06	ug/Kg
4,4'-DDT	<MDL		0.69	1.37	ug/Kg	<MDL,E		0.45	0.896	ug/Kg	<MDL,E		0.61	1.21	ug/Kg	<MDL,E		0.54	1.06	ug/Kg
Aldrin	<MDL		0.69	1.37	ug/Kg	<MDL		0.45	0.896	ug/Kg	<MDL		0.61	1.21	ug/Kg	<MDL		0.54	1.06	ug/Kg
Alpha-BHC	<MDL		0.69	1.37	ug/Kg	<MDL		0.45	0.896	ug/Kg	<MDL		0.61	1.21	ug/Kg	<MDL		0.54	1.06	ug/Kg

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-01  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-1  
 Matrix: SALTWTRSED  
 % Solids: 39

Locator: DWMP-02  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-2  
 Matrix: SALTWTRSED  
 % Solids: 59.5

Locator: DWMP-03  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-3  
 Matrix: SALTWTRSED  
 % Solids: 44.1

Locator: DWMP-04  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-4  
 Matrix: SALTWTRSED  
 % Solids: 50.4

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units			
- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis					
COMBINED LABS																							
Aroclor 1016		<MDL	6.9	13.7	ug/Kg		<MDL	4.5	8.96	ug/Kg		<MDL	6.1	12.1	ug/Kg		<MDL	5.4	10.6	ug/Kg			
Aroclor 1221		<MDL	6.9	13.7	ug/Kg		<MDL	4.5	8.96	ug/Kg		<MDL	6.1	12.1	ug/Kg		<MDL	5.4	10.6	ug/Kg			
Aroclor 1232		<MDL	6.9	13.7	ug/Kg		<MDL	4.5	8.96	ug/Kg		<MDL	6.1	12.1	ug/Kg		<MDL	5.4	10.6	ug/Kg			
Aroclor 1242		<MDL	6.9	13.7	ug/Kg		<MDL	4.5	8.96	ug/Kg		<MDL	6.1	12.1	ug/Kg		<MDL	5.4	10.6	ug/Kg			
Aroclor 1248	109		6.9	13.7	ug/Kg	39.3	E	4.5	8.96	ug/Kg	134		6.1	12.1	ug/Kg	27.6		5.4	10.6	ug/Kg			
Aroclor 1254	231		6.9	13.7	ug/Kg	98.2		4.5	8.96	ug/Kg	270		6.1	12.1	ug/Kg	68.5		5.4	10.6	ug/Kg			
Aroclor 1260	193	G	6.9	13.7	ug/Kg	95.8	G	4.5	8.96	ug/Kg	184	G	6.1	12.1	ug/Kg	77.4	G	5.4	10.6	ug/Kg			
Beta-BHC		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Chlordane		<MDL	2.6	5.13	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	2.3	4.54	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Delta-BHC		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Dieldrin		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Endosulfan I		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Endosulfan II		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Endosulfan Sulfate		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Endrin		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Endrin Aldehyde		<MDL,G	0.69	1.37	ug/Kg		<MDL,G	0.45	0.896	ug/Kg		<MDL,G	0.61	1.21	ug/Kg		<MDL,G	0.54	1.06	ug/Kg			
Gamma-BHC (Lindane)		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Heptachlor		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Heptachlor Epoxide		<MDL	0.69	1.37	ug/Kg		<MDL	0.45	0.896	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.54	1.06	ug/Kg			
Methoxychlor		<MDL	3.3	6.85	ug/Kg		<MDL,E	2.2	4.49	ug/Kg		<MDL,E	2.9	6.05	ug/Kg		<MDL,E	2.6	5.3	ug/Kg			
Toxaphene		<MDL	6.9	13.7	ug/Kg		<MDL	4.5	8.96	ug/Kg		<MDL	6.1	12.1	ug/Kg		<MDL	5.4	10.6	ug/Kg			
M=OR EPA 8260B (7-3-02-002)																							
1,1,2-Trichloroethylene		<MDL	13	25.6	ug/Kg		<MDL	8.4	16.8	ug/Kg		<MDL	11	22.7	ug/Kg		<MDL	9.9	19.8	ug/Kg			
Ethylbenzene		<MDL	13	25.6	ug/Kg		<MDL	8.4	16.8	ug/Kg		<MDL	11	22.7	ug/Kg		<MDL	9.9	19.8	ug/Kg			
Tetrachloroethylene		<MDL	13	25.6	ug/Kg		<MDL	8.4	16.8	ug/Kg		<MDL	11	22.7	ug/Kg		<MDL	9.9	19.8	ug/Kg			
Total Xylenes		<MDL	13	25.6	ug/Kg		<MDL	8.4	16.8	ug/Kg		<MDL	11	22.7	ug/Kg		<MDL	9.9	19.8	ug/Kg			

\* Not converted to dry weight basis for this parameter



# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-05  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-5  
 Matrix: SALTWTRSED  
 % Solids: 74.8

Locator: DWMP-06  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-6  
 Matrix: SALTWTRSED  
 % Solids: 57.4

Locator: DWMP-07  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-7  
 Matrix: SALTWTRSED  
 % Solids: 49.9

Locator: DWMP-08  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-8  
 Matrix: SALTWTRSED  
 % Solids: 42.6

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units			
					- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis
COMBINED LABS																							
M=CV ASTM D422																							
Clay *	1.8		0.1		%	9.8		0.1		%	15		0.1		%	17.2		0.1		%			
Gravel *	53.6		0.1		%	3.1		0.1		%	0.86		0.1		%	3		0.1		%			
p+0.00 *	9.3		0.1		%	1.9		0.1		%	3.3		0.1		%	5.7		0.1		%			
p+1.00 *	8.1		0.1		%	9.6		0.1		%	4.1		0.1		%	5.1		0.1		%			
p+10.0 *	0.29		0.1		%	1.9		0.1		%	3		0.1		%	3.8		0.1		%			
p+10.0(more than) *	1		0.1		%	4.8		0.1		%	7.3		0.1		%	8.7		0.1		%			
p+2.00 *	12.6		0.1		%	36.2		0.1		%	10.7		0.1		%	10.8		0.1		%			
p+3.00 *	8.4		0.1		%	18.4		0.1		%	15.5		0.1		%	12.6		0.1		%			
p+4.00 *	2.7		0.1		%	4.2		0.1		%	10.6		0.1		%	8.8		0.1		%			
p+5.00 *	1.6		0.1		%	4.4		0.1		%	16.2		0.1		%	11.7		0.1		%			
p+6.00 *	0.65		0.1		%	4.9		0.1		%	11.2		0.1		%	11.5		0.1		%			
p+7.00 *	0.56		0.1		%	4		0.1		%	7.4		0.1		%	7.3		0.1		%			
p+8.00 *	0.64		0.1		%	3.6		0.1		%	5.2		0.1		%	6.2		0.1		%			
p+9.00 *	0.52		0.1		%	3		0.1		%	4.6		0.1		%	4.7		0.1		%			
p-1.00 *	17.9		0.1		%	1		0.1		%	0.86		0.1		%	1.1		0.1		%			
p-2.00 *	35.7		0.1		%	2.1		0.1		%	<MDL		0.1		%	1.9		0.1		%			
p-2.00(less than) *	<MDL		0.1		%	<MDL		0.1		%	<MDL		0.1		%	<MDL		0.1		%			
Sand *	41.2		0.1		%	70.3		0.1		%	44.2		0.1		%	43		0.1		%			
Silt *	3.4		0.1		%	16.9		0.1		%	40		0.1		%	36.8		0.1		%			
M=CV EPA9060-PSEP96 (03-04-002-001)																							
Total Organic Carbon	14200		670	1340	mg/Kg	16000		870	1740	mg/Kg	16700		1000	2000	mg/Kg	25600		1200	2350	mg/Kg			
M=CV SM2540-G (03-01-007-001)																							
Total Solids *	74.8		0.005	0.01	%	57.4		0.005	0.01	%	49.9		0.005	0.01	%	42.6		0.005	0.01	%			
Total Volatile Solids	2.57		0.00668	0.0134	%	4.65		0.00871	0.0174	%	4.99		0.01	0.02	%	7.98		0.0117	0.0235	%			
M=CV SM4500-NH3-G (03-03-004-001)																							
Ammonia Nitrogen	7.78		1.7	3.34	mg/Kg	1.86		0.44	0.871	mg/Kg	2.97		0.5	1	mg/Kg	2.7		0.59	1.17	mg/Kg			
M=CV SM4500S2-D, EPA376.2																							
Total Sulfide	58.8		6.6	6.55	mg/Kg	8.01		1.7	1.69	mg/Kg	60.1		4.2	4.21	mg/Kg	30.5		2.3	2.35	mg/Kg			
M=ES NONE																							
Sampcoordx1 *	1263840				ft	1263543				ft	1263346				ft	1263326				ft			
Sampcoordx2 *	1263838				ft	1263538				ft	1263350				ft	1263335				ft			
Sampcoordx3 *											1263351				ft	1263336				ft			
Sampcoordy1 *	229037				ft	228845				ft	228656				ft	228911				ft			
Sampcoordy2 *	229032				ft	228851				ft	228663				ft	228920				ft			
Sampcoordy3 *											228658				ft	228914				ft			
Sample Depth *	4				m	20				m	29				m	24				m			
Sample Start Time *	900				hr	1542				hr	1431				hr	1038				hr			
Sediment Sampling Depth *	5				cm	17				cm	17				cm	14				cm			
Sediment Sampling Range *	0-2 cm				none	0-2 cm				none	0-2 cm				none	0-2 cm				none			
Sediment Type	34S30				none	23N20				none	23N20				none	23N20				none			

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-05  
 Descrpt: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-5  
 Matrix: SALTWTRSED  
 % Solids: 74.8

Locator: DWMP-06  
 Descrpt: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-6  
 Matrix: SALTWTRSED  
 % Solids: 57.4

Locator: DWMP-07  
 Descrpt: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-7  
 Matrix: SALTWTRSED  
 % Solids: 49.9

Locator: DWMP-08  
 Descrpt: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-8  
 Matrix: SALTWTRSED  
 % Solids: 42.6

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
Tidal Condition	E				none	F				none	F				none	E				none
Tide Height *	8				ft	4				ft	2				ft	4				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA	0.061	<RDL	0.027	0.267	mg/Kg	0.16	<RDL	0.035	0.34	mg/Kg	0.411		0.04	0.393	mg/Kg	0.692		0.047	0.467	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Antimony, Total, ICP		<MDL,G	2	10.2	mg/Kg		<MDL,G	2.6	13.2	mg/Kg		<MDL,G	3	15.3	mg/Kg		<MDL,G	3.5	18	mg/Kg
Arsenic, Total, ICP	7.5	<RDL	3.3	17	mg/Kg	7.5	<RDL	4.4	22.1	mg/Kg	9.4	<RDL	5	25.5	mg/Kg	9.4	<RDL	6.1	30	mg/Kg
Cadmium, Total, ICP		<MDL,L	0.2	1.02	mg/Kg		<MDL,L	0.26	1.32	mg/Kg		<MDL,L	0.3	1.53	mg/Kg	0.68	<RDL,L	0.35	1.8	mg/Kg
Chromium, Total, ICP	21.4		0.33	1.7	mg/Kg	27.4		0.44	2.21	mg/Kg	40.9		0.5	2.55	mg/Kg	46.2		0.61	3	mg/Kg
Copper, Total, ICP	27		0.27	1.36	mg/Kg	31		0.35	1.76	mg/Kg	48.7		0.4	2.04	mg/Kg	63.4		0.47	2.39	mg/Kg
Lead, Total, ICP	25.5		2	10.2	mg/Kg	27		2.6	13.2	mg/Kg	48.9		3	15.3	mg/Kg	98.1		3.5	18	mg/Kg
Nickel, Total, ICP	24.6		1.3	6.8	mg/Kg	25.3		1.7	8.83	mg/Kg	34.5		2	10.2	mg/Kg	40.8		2.3	12	mg/Kg
Silver, Total, ICP	1.1	<RDL	0.27	1.32	mg/Kg	0.77	<RDL	0.35	1.73	mg/Kg	1.4	<RDL	0.38	1.94	mg/Kg	2.89		0.47	2.35	mg/Kg
Zinc, Total, ICP	77.7		0.33	1.7	mg/Kg	70.7		0.44	2.21	mg/Kg	77.8		0.5	2.55	mg/Kg	112		0.61	3	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL,G	0.35	0.709	ug/Kg		<MDL,G	0.45	0.923	ug/Kg		<MDL,G	0.52	1.06	ug/Kg		<MDL,G	0.61	1.24	ug/Kg
1,2-Dichlorobenzene		<MDL,G	0.35	0.709	ug/Kg		<MDL,G	0.45	0.923	ug/Kg		<MDL,G	0.52	1.06	ug/Kg		<MDL,G	0.61	1.24	ug/Kg
1,2-Diphenylhydrazine		<MDL	13	26.7	ug/Kg		<MDL	17	34.8	ug/Kg		<MDL	20	40.1	ug/Kg		<MDL	23	46.9	ug/Kg
1,3-Dichlorobenzene		<MDL,X	0.35	0.709	ug/Kg		<MDL,X	0.45	0.923	ug/Kg		<MDL,X	0.52	1.06	ug/Kg		<MDL,X	0.61	1.24	ug/Kg
1,4-Dichlorobenzene		<MDL,G	0.17	0.353	ug/Kg		<MDL,G	0.23	0.46	ug/Kg		<MDL,G	0.26	0.529	ug/Kg	1.25	G	0.31	0.62	ug/Kg
2,4,5-Trichlorophenol		<MDL	16	32.1	ug/Kg		<MDL	21	41.8	ug/Kg		<MDL,G	24	48.1	ug/Kg		<MDL,G	28	56.3	ug/Kg
2,4,6-Trichlorophenol		<MDL	17	34.8	ug/Kg		<MDL	23	45.3	ug/Kg		<MDL,G	26	52.1	ug/Kg		<MDL,G	31	61	ug/Kg
2,4-Dichlorophenol		<MDL	21	42.8	ug/Kg		<MDL	28	55.7	ug/Kg		<MDL,G	32	64.1	ug/Kg		<MDL,G	38	75.1	ug/Kg
2,4-Dimethylphenol		<MDL	9.4	18.7	ug/Kg		<MDL	12	24.4	ug/Kg		<MDL,G	14	28.1	ug/Kg		<MDL,G	16	32.9	ug/Kg
2,4-Dinitrotoluene		<MDL,L	4	8.02	ug/Kg		<MDL,L	5.2	10.5	ug/Kg		<MDL,L	6	12	ug/Kg		<MDL,L	7	14.1	ug/Kg
2,6-Dinitrotoluene		<MDL,L	13	26.7	ug/Kg		<MDL,L	17	34.8	ug/Kg		<MDL,L	20	40.1	ug/Kg		<MDL,L	23	46.9	ug/Kg
2-Chloronaphthalene		<MDL	21	42.8	ug/Kg		<MDL	28	55.7	ug/Kg		<MDL	32	64.1	ug/Kg		<MDL	38	75.1	ug/Kg
2-Chlorophenol		<MDL,G	11	21.4	ug/Kg		<MDL,G	14	27.9	ug/Kg		<MDL,G	16	32.1	ug/Kg		<MDL,G	19	37.6	ug/Kg
2-Methylnaphthalene	27	<RDL	19	37.4	ug/Kg		<MDL	24	48.8	ug/Kg		<MDL	28	56.1	ug/Kg		<MDL	33	65.7	ug/Kg
2-Methylphenol		<MDL	25	50.8	ug/Kg		<MDL	33	66.2	ug/Kg		<MDL,G	38	76.2	ug/Kg		<MDL,G	45	89.2	ug/Kg
2-Nitrophenol		<MDL	20	40.1	ug/Kg		<MDL	26	52.3	ug/Kg		<MDL,G	30	60.1	ug/Kg		<MDL,G	35	70.4	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	12	24.1	ug/Kg		<MDL	16	31.4	ug/Kg		<MDL	18	36.1	ug/Kg		<MDL	21	42.3	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	17	34.8	ug/Kg		<MDL	23	45.3	ug/Kg		<MDL	26	52.1	ug/Kg		<MDL	31	61	ug/Kg
4-Methylphenol		<MDL	21	42.8	ug/Kg		<MDL	28	55.7	ug/Kg		<MDL,G	32	64.1	ug/Kg		<MDL,G	38	75.1	ug/Kg
Acenaphthene	24.3		9.4	18.7	ug/Kg		<MDL	12	24.4	ug/Kg	18	<RDL	14	28.1	ug/Kg		<MDL	16	32.9	ug/Kg
Acenaphthylene	42.9		20	40.1	ug/Kg		<MDL	26	52.3	ug/Kg	30	<RDL	30	60.1	ug/Kg		<MDL	35	70.4	ug/Kg
Aniline		<MDL,X	25	50.8	ug/Kg		<MDL,X	33	66.2	ug/Kg		<MDL,X	38	76.2	ug/Kg		<MDL,X	45	89.2	ug/Kg
Anthracene	1030	G	5.3	10.7	ug/Kg	75.8	G	7	13.9	ug/Kg	131	G	8	16	ug/Kg	84.7	G	9.4	18.8	ug/Kg
Benzo(a)anthracene	973	X	2.7	5.35	ug/Kg	138	X	3.5	6.97	ug/Kg	224	X	4	8.02	ug/Kg	132	X	4.7	9.39	ug/Kg
Benzo(a)pyrene	904	X	4	8.02	ug/Kg	39	X	5.2	10.5	ug/Kg	26.9	X	6	12	ug/Kg	18.6	X	7	14.1	ug/Kg
Benzo(b)fluoranthene	1430	X,L	4	8.02	ug/Kg	265	X,L	5.2	10.5	ug/Kg	291	X,L	6	12	ug/Kg	176	X,L	7	14.1	ug/Kg

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-06  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-5  
 Matrix: SALTWRSED  
 % Solids: 74.8

Locator: DWMP-06  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-6  
 Matrix: SALTWRSED  
 % Solids: 57.4

Locator: DWMP-07  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-7  
 Matrix: SALTWRSED  
 % Solids: 49.9

Locator: DWMP-08  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-8  
 Matrix: SALTWRSED  
 % Solids: 42.6

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units			
			- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis		
COMBINED LABS																							
Benzo(g,h,i)perylene	41	X,G	11	21.4	ug/Kg	<MDL,X,G	14	27.9	ug/Kg	<MDL,X,G	16	32.1	ug/Kg	<MDL,X,G	19	37.6	ug/Kg						
Benzo(k)fluoranthene	488	G,L	4	8.02	ug/Kg	109	G,L	5.2	10.5	ug/Kg	143	G,L	6	12	ug/Kg	102	G,L	7	14.1	ug/Kg			
Benzoic Acid	338		8	16	ug/Kg	174		10	20.9	ug/Kg	206	G	12	24	ug/Kg	303	G	14	28.2	ug/Kg			
Benzyl Alcohol		<MDL,X	8	16	ug/Kg	<MDL,X	10	20.9	ug/Kg	<MDL,X	12	24	ug/Kg	<MDL,X	14	28.2	ug/Kg						
Benzyl Butyl Phthalate		<MDL,L	8	16	ug/Kg	42.7	L	10	20.9	ug/Kg	61.3	L	12	24	ug/Kg	169	L	14	28.2	ug/Kg			
Bis(2-Chloroethoxy)Methane		<MDL	23	45.5	ug/Kg	<MDL	30	59.2	ug/Kg	<MDL	34	68.1	ug/Kg	<MDL	40	79.8	ug/Kg						
Bis(2-Chloroethyl)Ether		<MDL,G	20	40.1	ug/Kg	<MDL,G	26	52.3	ug/Kg	<MDL,G	30	60.1	ug/Kg	<MDL,G	35	70.4	ug/Kg						
Bis(2-Chloroisopropyl)Ether		<MDL	20	40.1	ug/Kg	<MDL	26	52.3	ug/Kg	<MDL	30	60.1	ug/Kg	<MDL	35	70.4	ug/Kg						
Bis(2-Ethylhexyl)Phthalate	2490	G	9	18.7	ug/Kg	282	G	12	24.4	ug/Kg	387	G	13	28.1	ug/Kg	901	G	16	32.9	ug/Kg			
Caffeine		<MDL	8	16	ug/Kg	<MDL	10	20.9	ug/Kg	<MDL	12	24	ug/Kg	<MDL	14	28.2	ug/Kg						
Carbazole	246		9.4	18.7	ug/Kg	16	<RDL	12	24.4	ug/Kg	26	<RDL	14	28.1	ug/Kg	19	<RDL	16	32.9	ug/Kg			
Chrysene	1890	X,L	5.3	10.7	ug/Kg	173	X,L	7	13.9	ug/Kg	216	X,L	8	16	ug/Kg	117	X,L	9.4	18.8	ug/Kg			
Coprostanol		<MDL,X	19	37.4	ug/Kg	<MDL,X	24	48.8	ug/Kg	<MDL,X	28	56.1	ug/Kg	<MDL,X	33	65.7	ug/Kg						
Dibenzo(a,h)anthracene	38.4	G,L	9.4	18.7	ug/Kg	14	<RDL,G,L	12	24.4	ug/Kg	20	<RDL,G,L	14	28.1	ug/Kg	<MDL,G,L	16	32.9	ug/Kg				
Dibenzofuran	36	<RDL	19	37.4	ug/Kg	<MDL	24	48.8	ug/Kg	<MDL	28	56.1	ug/Kg	<MDL	33	65.7	ug/Kg						
Diethyl Phthalate		<MDL	8	16	ug/Kg	<MDL	10	20.9	ug/Kg	<MDL	12	24	ug/Kg	<MDL	14	28.2	ug/Kg						
Dimethyl Phthalate		<MDL,L	15	29.4	ug/Kg	<MDL,L	19	38.3	ug/Kg	<MDL,L	22	44.1	ug/Kg	<MDL,L	26	51.6	ug/Kg						
Di-N-Butyl Phthalate	62.3	B,L	6.7	13.4	ug/Kg	88.2	B,L	8.7	17.4	ug/Kg	65.9	B,L	10	20	ug/Kg	61.3	B,L	12	23.5	ug/Kg			
Di-N-Octyl Phthalate		<MDL,L	11	21.4	ug/Kg	<MDL,L	14	27.9	ug/Kg	<MDL,L	16	32.1	ug/Kg	<MDL,L	19	37.6	ug/Kg						
Fluoranthene	2190	X	11	21.4	ug/Kg	275	X	14	27.9	ug/Kg	401	X	16	32.1	ug/Kg	251	X	19	37.6	ug/Kg			
Fluorene	136		17	34.8	ug/Kg	<MDL	23	45.3	ug/Kg	36	<RDL	26	52.1	ug/Kg	<MDL	31	61	ug/Kg					
Hexachlorobenzene		<MDL,G	0.88	1.78	ug/Kg	<MDL,G	1.1	2.32	ug/Kg	<MDL,G	1.3	2.67	ug/Kg	<MDL,G	1.5	3.12	ug/Kg						
Hexachlorobutadiene		<MDL,G	1	2.01	ug/Kg	<MDL,G	1.3	2.61	ug/Kg	<MDL,G	1.5	3.01	ug/Kg	<MDL,G	1.8	3.52	ug/Kg						
Hexachloroethane		<MDL,X	20	40.1	ug/Kg	<MDL,X	26	52.3	ug/Kg	<MDL,X	30	60.1	ug/Kg	<MDL,X	35	70.4	ug/Kg						
Indeno(1,2,3-Cd)Pyrene	187	X	12	24.1	ug/Kg	21	<RDL,X	16	31.4	ug/Kg	20	<RDL,X	18	36.1	ug/Kg	<MDL,X	21	42.3	ug/Kg				
Isophorone		<MDL	25	50.8	ug/Kg	<MDL	33	66.2	ug/Kg	<MDL	38	76.2	ug/Kg	<MDL	45	89.2	ug/Kg						
Naphthalene		<MDL,G	19	37.4	ug/Kg	<MDL,G	24	48.8	ug/Kg	<MDL,G	28	56.1	ug/Kg	<MDL,G	33	65.7	ug/Kg						
Nitrobenzene		<MDL,G	21	42.8	ug/Kg	<MDL,G	28	55.7	ug/Kg	<MDL,G	32	64.1	ug/Kg	<MDL,G	38	75.1	ug/Kg						
N-Nitrosodimethylamine		<MDL	27	53.5	ug/Kg	<MDL	35	69.7	ug/Kg	<MDL	40	80.2	ug/Kg	<MDL	47	93.9	ug/Kg						
N-Nitrosodi-N-Propylamine		<MDL	12	24.1	ug/Kg	<MDL	16	31.4	ug/Kg	<MDL	18	36.1	ug/Kg	<MDL	21	42.3	ug/Kg						
N-Nitrosodiphenylamine		<MDL	27	53.5	ug/Kg	<MDL	35	69.7	ug/Kg	<MDL	40	80.2	ug/Kg	<MDL	47	93.9	ug/Kg						
Pentachlorophenol		<MDL	6.7	13.4	ug/Kg	<MDL	8.7	17.4	ug/Kg	<MDL,G	10	20	ug/Kg	<MDL,G	12	23.5	ug/Kg						
Phenanthrene	992	X,G	5.3	10.7	ug/Kg	107	X,G	7	13.9	ug/Kg	188	X,G	8	16	ug/Kg	112	X,G	9.4	18.8	ug/Kg			
Phenol		<MDL	12	24.1	ug/Kg	<MDL	16	31.4	ug/Kg	<MDL,G	18	36.1	ug/Kg	<MDL,G	21	42.3	ug/Kg						
Pyrene	1510	X,G	5.3	10.7	ug/Kg	121	X,G	7	13.9	ug/Kg	95.6	X,G	8	16	ug/Kg	54.7	X,G	9.4	18.8	ug/Kg			
M=OR EPA 8081A/8082 (7-3-03-002)																							
4,4'-DDD	1.58	E	0.36	0.713	ug/Kg	2.6	E	0.47	0.929	ug/Kg	6.47	E	0.54	1.07	ug/Kg	17.1	E	0.63	1.25	ug/Kg			
4,4'-DDE	0.37	<RDL,G,E	0.36	0.713	ug/Kg	0.56	<RDL,G,E	0.47	0.929	ug/Kg	0.74	<RDL,G,E	0.54	1.07	ug/Kg	2.65	G,E	0.63	1.25	ug/Kg			
4,4'-DDT		<MDL,E	0.36	0.713	ug/Kg	<MDL,E	0.47	0.929	ug/Kg	<MDL,E	0.54	1.07	ug/Kg	<MDL,E	0.63	1.25	ug/Kg						
Aldrin		<MDL	0.36	0.713	ug/Kg	<MDL	0.47	0.929	ug/Kg	<MDL	0.54	1.07	ug/Kg	<MDL	0.63	1.25	ug/Kg						
Alpha-BHC		<MDL	0.36	0.713	ug/Kg	<MDL	0.47	0.929	ug/Kg	<MDL	0.54	1.07	ug/Kg	<MDL	0.63	1.25	ug/Kg						

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-05  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-5  
 Matrix: SALTWTRSED  
 % Solids: 74.8

Locator: DWMP-06  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-6  
 Matrix: SALTWTRSED  
 % Solids: 57.4

Locator: DWMP-07  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 09, 2001  
 Lab ID: L20541-7  
 Matrix: SALTWTRSED  
 % Solids: 49.9

Locator: DWMP-08  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-8  
 Matrix: SALTWTRSED  
 % Solids: 42.6

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis			
COMBINED LABS																					
Aroclor 1016		<MDL	3.6	7.13	ug/Kg		<MDL	4.7	9.29	ug/Kg		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.5	ug/Kg	
Aroclor 1221		<MDL	3.6	7.13	ug/Kg		<MDL	4.7	9.29	ug/Kg		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.5	ug/Kg	
Aroclor 1232		<MDL	3.6	7.13	ug/Kg		<MDL	4.7	9.29	ug/Kg		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.5	ug/Kg	
Aroclor 1242		<MDL	3.6	7.13	ug/Kg		<MDL	4.7	9.29	ug/Kg		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.5	ug/Kg	
Aroclor 1248	21.9		3.6	7.13	ug/Kg	32.2		4.7	9.29	ug/Kg	35.1		5.4	10.7	ug/Kg	83.3		6.3	12.5	ug/Kg	
Aroclor 1254	40.5		3.6	7.13	ug/Kg	65.7		4.7	9.29	ug/Kg	95		5.4	10.7	ug/Kg	216		6.3	12.5	ug/Kg	
Aroclor 1260	25.5	G,E	3.6	7.13	ug/Kg	66.7	G	4.7	9.29	ug/Kg	101	G	5.4	10.7	ug/Kg	202	G	6.3	12.5	ug/Kg	
Beta-BHC		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Chlordane		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.69	ug/Kg	
Delta-BHC		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Dieldrin		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Endosulfan I		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Endosulfan II		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Endosulfan Sulfate		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Endrin		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Endrin Aldehyde		<MDL,G	0.36	0.713	ug/Kg		<MDL,G	0.47	0.929	ug/Kg		<MDL,G	0.54	1.07	ug/Kg		<MDL,G	0.63	1.25	ug/Kg	
Gamma-BHC (Lindane)		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Heptachlor		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Heptachlor Epoxide		<MDL	0.36	0.713	ug/Kg		<MDL	0.47	0.929	ug/Kg		<MDL	0.54	1.07	ug/Kg		<MDL	0.63	1.25	ug/Kg	
Methoxychlor		<MDL,E	1.7	3.57	ug/Kg		<MDL,E	2.3	4.65	ug/Kg		<MDL,E	2.6	5.35	ug/Kg		<MDL,E	3.1	6.27	ug/Kg	
Toxaphene		<MDL	3.6	7.13	ug/Kg		<MDL	4.7	9.29	ug/Kg		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.5	ug/Kg	
M=OR EPA 8260B (7-3-02-002)																					
1,1,2-Trichloroethylene		<MDL	6.7	13.4	ug/Kg		<MDL	8.7	17.4	ug/Kg		<MDL	10	20	ug/Kg		<MDL	12	23.5	ug/Kg	
Ethylbenzene		<MDL	6.7	13.4	ug/Kg		<MDL	8.7	17.4	ug/Kg		<MDL	10	20	ug/Kg		<MDL	12	23.5	ug/Kg	
Tetrachloroethylene		<MDL	6.7	13.4	ug/Kg		<MDL	8.7	17.4	ug/Kg		<MDL	10	20	ug/Kg		<MDL	12	23.5	ug/Kg	
Total Xylenes		<MDL	6.7	13.4	ug/Kg		<MDL	8.7	17.4	ug/Kg		<MDL	10	20	ug/Kg		<MDL	12	23.5	ug/Kg	

\* Not converted to dry weight basis for this parameter

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-09  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-9  
 Matrix: SALTWTRSED  
 % Solids: 39.4

Locator: DWMP-10  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-10  
 Matrix: SALTWTRSED  
 % Solids: 71.5

Locator: DWMP-11  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-11  
 Matrix: SALTWTRSED  
 % Solids: 57.9

Locator: DWMP-12  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-12  
 Matrix: SALTWTRSED  
 % Solids: 37.3

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis
<b>COMBINED LABS</b>																				
M=CV ASTM D422																				
Clay *	19		0.1		%	1.7		0.1		%	8.7		0.1		%	23		0.1		%
Gravel *	3.8		0.1		%	0.38	E	0.1		%	0.92		0.1		%	0.64		0.1		%
p+0.00 *	6.8		0.1		%	2.1		0.1		%	1.9		0.1		%	7.7		0.1		%
p+1.00 *	3.8		0.1		%	15.5		0.1		%	14		0.1		%	1.9		0.1		%
p+10.0 *	3.8		0.1		%	0.22		0.1		%	1.6		0.1		%	4.7		0.1		%
p+10.0(more than) *	9.9		0.1		%	1.3		0.1		%	4.5		0.1		%	11.8		0.1		%
p+2.00 *	5.7		0.1		%	45.9		0.1		%	35.1		0.1		%	2.3		0.1		%
p+3.00 *	6.7		0.1		%	27		0.1		%	15.6		0.1		%	4.1		0.1		%
p+4.00 *	8.8		0.1		%	6.1		0.1		%	5.1		0.1		%	7.8		0.1		%
p+5.00 *	14.9		0.1		%	<MDL		0.1		%	6.8		0.1		%	16.1		0.1		%
p+6.00 *	13.9		0.1		%	0.4		0.1		%	5		0.1		%	16.1		0.1		%
p+7.00 *	9.9		0.1		%	0.43		0.1		%	3.9		0.1		%	12		0.1		%
p+8.00 *	6.8		0.1		%	0.34		0.1		%	2.9		0.1		%	8.4		0.1		%
p+9.00 *	5.3		0.1		%	0.22		0.1		%	2.7		0.1		%	6.4		0.1		%
p-1.00 *	1.1		0.1		%	0.27		0.1		%	0.71		0.1		%	0.64		0.1		%
p-2.00 *	2.7		0.1		%	0.11		0.1		%	0.22		0.1		%	<MDL		0.1		%
p-2.00(less than) *	<MDL		0.1		%	<MDL		0.1		%	<MDL		0.1		%	<MDL		0.1		%
Sand *	31.8		0.1		%	96.8		0.1		%	71.8		0.1		%	23.7		0.1		%
Silt *	45.5		0.1		%	1.1		0.1		%	18.6		0.1		%	52.6		0.1		%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	30700		1300	2540	mg/Kg	7640		700	1400	mg/Kg	18800		860	1730	mg/Kg	30600		1300	2680	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	39.4		0.005	0.01	%	71.5		0.005	0.01	%	57.9		0.005	0.01	%	37.3		0.005	0.01	%
Total Volatile Solids	8.4		0.0127	0.0254	%	2.5		0.00699	0.014	%	5.61		0.00864	0.0173	%	8.9		0.0134	0.0268	%
M=CV SM4500-NH3-G (03-03-004-001)																				
Ammonia Nitrogen	3.22		0.63	1.27	mg/Kg	4.78		0.35	0.699	mg/Kg	2.06		0.43	0.864	mg/Kg	3.35		0.67	1.34	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide	48.2		2.8	2.79	mg/Kg	84.3	G	14	14	mg/Kg	98.4		7.9	7.94	mg/Kg	26.8		2.6	2.6	mg/Kg
M=ES NONE																				
Sampcoordx1 *	1263210				ft	1263560				ft	1263263				ft	1263052				ft
Sampcoordx2 *	1263219				ft	1263567				ft	1263283				ft	1263054				ft
Sampcoordx3 *											1263279				ft	1263055				ft
Sampcoordy1 *	228815				ft	229324				ft	229160				ft	228950				ft
Sampcoordy2 *	228809				ft	229321				ft	229161				ft	228949				ft
Sampcoordy3 *											229161				ft	228971				ft
Sample Depth *	29				m	7				m	19				m	29				m
Sample Start Time *	1143				hr	1400				hr	1210				hr	1300				hr
Sediment Sampling Depth *	17				cm	7				cm	12				cm	17				cm
Sediment Sampling Range *	0-2 cm				none	0-2 cm				none	0-2 cm				none	0-2 cm				none
Sediment Type	23N20				none	30P10				none	23W20				none	20N40				none

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-09  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-9  
 Matrix: SALTWTRSED  
 % Solids: 39.4

Locator: DWMP-10  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-10  
 Matrix: SALTWTRSED  
 % Solids: 71.5

Locator: DWMP-11  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-11  
 Matrix: SALTWTRSED  
 % Solids: 57.9

Locator: DWMP-12  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-12  
 Matrix: SALTWTRSED  
 % Solids: 37.3

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
- Dry Weight Basis						- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis				
COMBINED LABS																				
Tidal Condition	E				none	F				none	E				none	S				none
Tide Height *	2				ft	8				ft	1				ft	0				ft
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA	0.741		0.051	0.5	mg/Kg	0.2	<RDL	0.028	0.274	mg/Kg	0.477		0.035	0.344	mg/Kg	0.571		0.054	0.531	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Antimony, Total, ICP		<MDL,G	3.8	19	mg/Kg		<MDL,G	2.1	10.6	mg/Kg		<MDL,G	2.6	12.6	mg/Kg		<MDL,G	4	20.3	mg/Kg
Arsenic, Total, ICP	12	<RDL	6.3	31.7	mg/Kg	6.2	<RDL	3.5	17.8	mg/Kg	6.6	<RDL	4.1	20.9	mg/Kg	16	<RDL	6.7	33.8	mg/Kg
Cadmium, Total, ICP	0.76	<RDL,L	0.38	1.9	mg/Kg	0.46	<RDL,L	0.21	1.06	mg/Kg	0.47	<RDL,L	0.26	1.26	mg/Kg	0.99	<RDL,L	0.4	2.03	mg/Kg
Chromium, Total, ICP	50.5		0.63	3.17	mg/Kg	41.7		0.35	1.78	mg/Kg	27.1		0.41	2.09	mg/Kg	55		0.67	3.38	mg/Kg
Copper, Total, ICP	69.8		0.51	2.54	mg/Kg	69.2		0.28	1.41	mg/Kg	34.9		0.33	1.68	mg/Kg	68.1		0.54	2.71	mg/Kg
Lead, Total, ICP	73.4		3.8	19	mg/Kg	99.7		2.1	10.6	mg/Kg	34.4		2.6	12.6	mg/Kg	89.8		4	20.3	mg/Kg
Nickel, Total, ICP	45.7		2.5	12.7	mg/Kg	30.3		1.4	7.08	mg/Kg	24.2		1.7	8.39	mg/Kg	52.3		2.7	13.6	mg/Kg
Silver, Total, ICP	2.99		0.51	2.52	mg/Kg	1.94		0.28	1.37	mg/Kg	1.1	<RDL	0.35	1.69	mg/Kg	2.95		0.54	2.66	mg/Kg
Zinc, Total, ICP	105		0.63	3.17	mg/Kg	96.1		0.35	1.78	mg/Kg	77.7		0.41	2.09	mg/Kg	118		0.67	3.38	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL,G	0.66	1.35	ug/Kg		<MDL,G	0.36	0.741	ug/Kg		<MDL,G	0.45	0.915	ug/Kg		<MDL,G	0.7	1.42	ug/Kg
1,2-Dichlorobenzene		<MDL,G	0.66	1.35	ug/Kg		<MDL,G	0.36	0.741	ug/Kg		<MDL,G	0.45	0.915	ug/Kg		<MDL,G	0.7	1.42	ug/Kg
1,2-Diphenylhydrazine		<MDL	25	50.8	ug/Kg		<MDL	14	28	ug/Kg		<MDL	17	34.5	ug/Kg		<MDL	27	53.6	ug/Kg
1,3-Dichlorobenzene		<MDL,X	0.66	1.35	ug/Kg		<MDL,X	0.36	0.741	ug/Kg		<MDL,X	0.45	0.915	ug/Kg		<MDL,X	0.7	1.42	ug/Kg
1,4-Dichlorobenzene		<MDL,G	0.33	0.67	ug/Kg		<MDL,G	0.18	0.369	ug/Kg		<MDL,G	0.22	0.456	ug/Kg		<MDL,G	0.35	0.708	ug/Kg
2,4,5-Trichlorophenol		<MDL,G	30	60.9	ug/Kg		<MDL,G	17	33.6	ug/Kg		<MDL,G	21	41.5	ug/Kg		<MDL,G	32	64.3	ug/Kg
2,4,6-Trichlorophenol		<MDL,G	33	66	ug/Kg		<MDL,G	18	36.4	ug/Kg		<MDL,G	22	44.9	ug/Kg		<MDL,G	35	69.7	ug/Kg
2,4-Dichlorophenol		<MDL,G	41	81.2	ug/Kg		<MDL,G	22	44.8	ug/Kg		<MDL,G	28	55.3	ug/Kg		<MDL,G	43	85.8	ug/Kg
2,4-Dimethylphenol		<MDL,G	18	35.5	ug/Kg		<MDL,G	9.8	19.6	ug/Kg		<MDL,G	12	24.2	ug/Kg		<MDL,G	19	37.5	ug/Kg
2,4-Dinitrotoluene		<MDL,L	7.6	15.2	ug/Kg		<MDL,L	4.2	8.39	ug/Kg		<MDL,L	5.2	10.4	ug/Kg		<MDL,L	8	16.1	ug/Kg
2,6-Dinitrotoluene		<MDL,L	25	50.8	ug/Kg		<MDL,L	14	28	ug/Kg		<MDL,L	17	34.5	ug/Kg		<MDL,L	27	53.6	ug/Kg
2-Chloronaphthalene		<MDL	41	81.2	ug/Kg		<MDL	22	44.8	ug/Kg		<MDL	28	55.3	ug/Kg		<MDL	43	85.8	ug/Kg
2-Chlorophenol		<MDL,G	20	40.6	ug/Kg		<MDL,G	11	22.4	ug/Kg		<MDL,G	14	27.6	ug/Kg		<MDL,G	21	42.9	ug/Kg
2-Methylnaphthalene		<MDL	36	71.1	ug/Kg		<MDL	20	39.2	ug/Kg		<MDL	24	48.4	ug/Kg		<MDL	38	75.1	ug/Kg
2-Methylphenol		<MDL,G	48	96.4	ug/Kg		<MDL,G	27	53.1	ug/Kg		<MDL,G	33	65.6	ug/Kg		<MDL,G	51	102	ug/Kg
2-Nitrophenol		<MDL,G	38	76.1	ug/Kg		<MDL,G	21	42	ug/Kg		<MDL,G	26	51.8	ug/Kg		<MDL,G	40	80.4	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	23	45.7	ug/Kg		<MDL	13	25.2	ug/Kg		<MDL	16	31.1	ug/Kg		<MDL	24	48.3	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	33	66	ug/Kg		<MDL	18	36.4	ug/Kg		<MDL	22	44.9	ug/Kg		<MDL	35	69.7	ug/Kg
4-Methylphenol		<MDL,G	41	81.2	ug/Kg		<MDL,G	22	44.8	ug/Kg		<MDL,G	28	55.3	ug/Kg		<MDL,G	43	85.8	ug/Kg
Acenaphthene		<MDL	18	35.5	ug/Kg		<MDL	9.8	19.6	ug/Kg		<MDL	12	24.2	ug/Kg		<MDL	19	37.5	ug/Kg
Acenaphthylene		<MDL	38	76.1	ug/Kg		<MDL	21	42	ug/Kg		<MDL	26	51.8	ug/Kg		<MDL	40	80.4	ug/Kg
Aniline		<MDL,X	48	96.4	ug/Kg		<MDL,X	27	53.1	ug/Kg		<MDL,X	33	65.6	ug/Kg		<MDL,X	51	102	ug/Kg
Anthracene	69	G	10	20.3	ug/Kg	47.4	G	5.6	11.2	ug/Kg	43.2	G	6.9	13.8	ug/Kg	59.5	G	11	21.4	ug/Kg
Benzo(a)anthracene	67.8	X	5.1	10.2	ug/Kg	84.1	X	2.8	5.59	ug/Kg	43.2	X	3.5	6.91	ug/Kg	30.3	X	5.4	10.7	ug/Kg
Benzo(a)pyrene		<MDL,X	7.6	15.2	ug/Kg		<MDL,X	4.2	8.39	ug/Kg		<MDL,X	5.2	10.4	ug/Kg		<MDL,X	8	16.1	ug/Kg
Benzo(b)fluoranthene	89.1	X,L	7.6	15.2	ug/Kg	69.1	X,L	4.2	8.39	ug/Kg	32.8	X,L	5.2	10.4	ug/Kg	34.6	X,L	8	16.1	ug/Kg

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-09  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-9  
 Matrix: SALTWTRSED  
 % Solids: 39.4

Locator: DWMP-10  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-10  
 Matrix: SALTWTRSED  
 % Solids: 71.5

Locator: DWMP-11  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-11  
 Matrix: SALTWTRSED  
 % Solids: 57.9

Locator: DWMP-12  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-12  
 Matrix: SALTWTRSED  
 % Solids: 37.3

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units			
					- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis
COMBINED LABS																							
Benzo(g,h,i)perylene		<MDL	X,G	20	40.6 ug/Kg		<MDL	X,G	11	22.4 ug/Kg		<MDL	X,G	14	27.6 ug/Kg		<MDL	X,G	21	42.9 ug/Kg			
Benzo(k)fluoranthene	50	G,L	7.6	15.2	ug/Kg	42	G,L	4.2	8.39	ug/Kg	22.1	G,L	5.2	10.4	ug/Kg		<MDL	G,L	8	16.1 ug/Kg			
Benzoic Acid	248	G	15	30.5	ug/Kg	173	G	8.4	16.8	ug/Kg	226	G	10	20.7	ug/Kg	284	G	16	32.2	ug/Kg			
Benzyl Alcohol		<MDL	X	15	30.5 ug/Kg		<MDL	X	8.4	16.8 ug/Kg		<MDL	X	10	20.7 ug/Kg		<MDL	X	16	32.2 ug/Kg			
Benzyl Butyl Phthalate	94.2	L	15	30.5	ug/Kg	266	L	8.4	16.8	ug/Kg	60.3	L	10	20.7	ug/Kg	151	L	16	32.2	ug/Kg			
Bis(2-Chloroethoxy)Methane		<MDL		43	86.3 ug/Kg		<MDL		24	47.6 ug/Kg		<MDL		29	58.7 ug/Kg		<MDL		46	91.2 ug/Kg			
Bis(2-Chloroethyl)Ether		<MDL	G	38	76.1 ug/Kg		<MDL	G	21	42 ug/Kg		<MDL	G	26	51.8 ug/Kg		<MDL	G	40	80.4 ug/Kg			
Bis(2-Chloroisopropyl)Ether		<MDL		38	76.1 ug/Kg		<MDL		21	42 ug/Kg		<MDL		26	51.8 ug/Kg		<MDL		40	80.4 ug/Kg			
Bis(2-Ethylhexyl)Phthalate	1030	G	17	35.5	ug/Kg	2320	G	9.4	19.6	ug/Kg	409	G	12	24.2	ug/Kg	1870	G	18	37.5	ug/Kg			
Caffeine		<MDL		15	30.5 ug/Kg		<MDL		8.4	16.8 ug/Kg		<MDL		10	20.7 ug/Kg		<MDL		16	32.2 ug/Kg			
Carbazole	22	<RDL		18	35.5 ug/Kg	21.5		9.8	19.6	ug/Kg	15	<RDL		12	24.2 ug/Kg	22	<RDL		19	37.5 ug/Kg			
Chrysene	60.2	X,L	10	20.3	ug/Kg	50.9	X,L	5.6	11.2	ug/Kg	26.4	X,L	6.9	13.8	ug/Kg	17	<RDL	X,L	11	21.4 ug/Kg			
Coprostanol		<MDL	X	36	71.1 ug/Kg		<MDL	X	20	39.2 ug/Kg		<MDL	X	24	48.4 ug/Kg		<MDL	X	38	75.1 ug/Kg			
Dibenzo(a,h)anthracene		<MDL	G,L	18	35.5 ug/Kg		<MDL	G,L	9.8	19.6 ug/Kg		<MDL	G,L	12	24.2 ug/Kg		<MDL	G,L	19	37.5 ug/Kg			
Dibenzofuran		<MDL		36	71.1 ug/Kg		<MDL		20	39.2 ug/Kg		<MDL		24	48.4 ug/Kg		<MDL		38	75.1 ug/Kg			
Diethyl Phthalate		<MDL		15	30.5 ug/Kg		<MDL		8.4	16.8 ug/Kg		<MDL		10	20.7 ug/Kg		<MDL		16	32.2 ug/Kg			
Dimethyl Phthalate		<MDL	L	28	55.8 ug/Kg	20	<RDL	L	15	30.8 ug/Kg		<MDL	L	19	38 ug/Kg		<MDL	L	29	59 ug/Kg			
Di-N-Butyl Phthalate	74.6	B,L	13	25.4	ug/Kg	215	B,L	7	14	ug/Kg	71.5	B,L	8.6	17.3	ug/Kg	87.7	B,L	13	26.8	ug/Kg			
Di-N-Octyl Phthalate		<MDL	L	20	40.6 ug/Kg		<MDL	L	11	22.4 ug/Kg		<MDL	L	14	27.6 ug/Kg		<MDL	L	21	42.9 ug/Kg			
Fluoranthene	123	X	20	40.6	ug/Kg	197	X	11	22.4	ug/Kg	83.1	X	14	27.6	ug/Kg	45.6	X	21	42.9	ug/Kg			
Fluorene		<MDL		33	66 ug/Kg	63.8		18	36.4	ug/Kg		<MDL		22	44.9 ug/Kg		<MDL		35	69.7 ug/Kg			
Hexachlorobenzene		<MDL	G	1.7	3.38 ug/Kg		<MDL	G	0.92	1.86 ug/Kg		<MDL	G	1.1	2.3 ug/Kg		<MDL	G	1.8	3.57 ug/Kg			
Hexachlorobutadiene		<MDL	G	1.9	3.81 ug/Kg		<MDL	G	1	2.1 ug/Kg		<MDL	G	1.3	2.59 ug/Kg		<MDL	G	2	4.02 ug/Kg			
Hexachloroethane		<MDL	X	38	76.1 ug/Kg		<MDL	X	21	42 ug/Kg		<MDL	X	26	51.8 ug/Kg		<MDL	X	40	80.4 ug/Kg			
Indeno(1,2,3-Cd)Pyrene		<MDL	X	23	45.7 ug/Kg		<MDL	X	13	25.2 ug/Kg		<MDL	X	16	31.1 ug/Kg		<MDL	X	24	48.3 ug/Kg			
Isophorone		<MDL		48	96.4 ug/Kg		<MDL		27	53.1 ug/Kg		<MDL		33	65.6 ug/Kg		<MDL		51	102 ug/Kg			
Naphthalene		<MDL	G	36	71.1 ug/Kg		<MDL	G	20	39.2 ug/Kg		<MDL	G	24	48.4 ug/Kg		<MDL	G	38	75.1 ug/Kg			
Nitrobenzene		<MDL	G	41	81.2 ug/Kg		<MDL	G	22	44.8 ug/Kg		<MDL	G	28	55.3 ug/Kg		<MDL	G	43	85.8 ug/Kg			
N-Nitrosodimethylamine		<MDL		51	102 ug/Kg		<MDL		28	55.9 ug/Kg		<MDL		35	69.1 ug/Kg		<MDL		54	107 ug/Kg			
N-Nitrosodi-N-Propylamine		<MDL		23	45.7 ug/Kg		<MDL		13	25.2 ug/Kg		<MDL		16	31.1 ug/Kg		<MDL		24	48.3 ug/Kg			
N-Nitrosodiphenylamine		<MDL		51	102 ug/Kg		<MDL		28	55.9 ug/Kg		<MDL		35	69.1 ug/Kg		<MDL		54	107 ug/Kg			
Pentachlorophenol		<MDL	G	13	25.4 ug/Kg		<MDL	G	7	14 ug/Kg		<MDL	G	8.6	17.3 ug/Kg		<MDL	G	13	26.8 ug/Kg			
Phenanthrene	50.5	X,G	10	20.3	ug/Kg	83.8	X,G	5.6	11.2	ug/Kg	37.3	X,G	6.9	13.8	ug/Kg	15	<RDL	X,G	11	21.4 ug/Kg			
Phenol		<MDL	G	23	45.7 ug/Kg		<MDL	G	13	25.2 ug/Kg		<MDL	G	16	31.1 ug/Kg		<MDL	G	24	48.3 ug/Kg			
Pyrene	30.2	X,G	10	20.3	ug/Kg	28.7	X,G	5.6	11.2	ug/Kg	14	X,G	6.9	13.8	ug/Kg		<MDL	X,G	11	21.4 ug/Kg			
M=OR EPA 8081A/8082 (7-3-03-002)																							
4,4'-DDD	13.2	E	0.69	1.35	ug/Kg	1.89	E	0.38	0.745	ug/Kg	6.86	E	0.47	0.921	ug/Kg	13.1	E	0.72	1.43	ug/Kg			
4,4'-DDE	1.97	G,E	0.69	1.35	ug/Kg	0.38	<RDL	G,E	0.38	0.745 ug/Kg	0.927	G,E	0.47	0.921	ug/Kg	2.98	G,E	0.72	1.43	ug/Kg			
4,4'-DDT		<MDL	E	0.69	1.35 ug/Kg		<MDL	E	0.38	0.745 ug/Kg		<MDL	E	0.47	0.921 ug/Kg		<MDL	E	0.72	1.43 ug/Kg			
Aldrin		<MDL		0.69	1.35 ug/Kg		<MDL		0.38	0.745 ug/Kg		<MDL		0.47	0.921 ug/Kg		<MDL		0.72	1.43 ug/Kg			
Alpha-BHC		<MDL		0.69	1.35 ug/Kg		<MDL		0.38	0.745 ug/Kg		<MDL		0.47	0.921 ug/Kg		<MDL		0.72	1.43 ug/Kg			

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-09  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-9  
 Matrix: SALTWTRSED  
 % Solids: 39.4

Locator: DWMP-10  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-10  
 Matrix: SALTWTRSED  
 % Solids: 71.5

Locator: DWMP-11  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-11  
 Matrix: SALTWTRSED  
 % Solids: 57.9

Locator: DWMP-12  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-12  
 Matrix: SALTWTRSED  
 % Solids: 37.3

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
Aroclor 1016		<MDL	6.9	13.5	ug/Kg		<MDL	3.8	7.45	ug/Kg		<MDL	4.7	9.21	ug/Kg		<MDL	7.2	14.3	ug/Kg
Aroclor 1221		<MDL	6.9	13.5	ug/Kg		<MDL	3.8	7.45	ug/Kg		<MDL	4.7	9.21	ug/Kg		<MDL	7.2	14.3	ug/Kg
Aroclor 1232		<MDL	6.9	13.5	ug/Kg		<MDL	3.8	7.45	ug/Kg		<MDL	4.7	9.21	ug/Kg		<MDL	7.2	14.3	ug/Kg
Aroclor 1242		<MDL	6.9	13.5	ug/Kg		<MDL	3.8	7.45	ug/Kg		<MDL	4.7	9.21	ug/Kg		<MDL	7.2	14.3	ug/Kg
Aroclor 1248	90.9		6.9	13.5	ug/Kg	14.5		3.8	7.45	ug/Kg	38.7		4.7	9.21	ug/Kg	165		7.2	14.3	ug/Kg
Aroclor 1254	376		6.9	13.5	ug/Kg	60.8		3.8	7.45	ug/Kg	93.3		4.7	9.21	ug/Kg	343		7.2	14.3	ug/Kg
Aroclor 1260	189	G	6.9	13.5	ug/Kg	24.3	G	3.8	7.45	ug/Kg	69.6	G	4.7	9.21	ug/Kg	240	G	7.2	14.3	ug/Kg
Beta-BHC		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Chlordane		<MDL	2.5	5.08	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	2.7	5.36	ug/Kg
Delta-BHC		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Dieldrin		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Endosulfan I		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Endosulfan II		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Endosulfan Sulfate		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Endrin		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Endrin Aldehyde		<MDL,G	0.69	1.35	ug/Kg		<MDL,G	0.38	0.745	ug/Kg		<MDL,G	0.47	0.921	ug/Kg		<MDL,G	0.72	1.43	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Heptachlor		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Heptachlor Epoxide		<MDL	0.69	1.35	ug/Kg		<MDL	0.38	0.745	ug/Kg		<MDL	0.47	0.921	ug/Kg		<MDL	0.72	1.43	ug/Kg
Methoxychlor		<MDL,E	3.3	6.78	ug/Kg		<MDL,E	1.8	3.73	ug/Kg		<MDL,E	2.2	4.61	ug/Kg		<MDL,E	3.5	7.16	ug/Kg
Toxaphene		<MDL	6.9	13.5	ug/Kg		<MDL	3.8	7.45	ug/Kg		<MDL	4.7	9.21	ug/Kg		<MDL	7.2	14.3	ug/Kg
M=OR EPA 8260B (7-3-02-002)																				
1,1,2-Trichloroethylene		<MDL	13	25.4	ug/Kg		<MDL	7	14	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL	13	26.8	ug/Kg
Ethylbenzene		<MDL	13	25.4	ug/Kg		<MDL	7	14	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL	13	26.8	ug/Kg
Tetrachloroethylene		<MDL	13	25.4	ug/Kg		<MDL	7	14	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL	13	26.8	ug/Kg
Total Xylenes		<MDL	13	25.4	ug/Kg		<MDL	7	14	ug/Kg		<MDL	8.6	17.3	ug/Kg		<MDL	13	26.8	ug/Kg
* Not converted to dry weight basis for this parameter																				



# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-12  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-13  
 Matrix: SALTWTRSED  
 % Solids: 24.4

Locator: DWMP-13  
 Descrpt: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-14  
 Matrix: SALTWTRSED  
 % Solids: 81.2

Locator: DWMP-14  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-15  
 Matrix: SALTWTRSED  
 % Solids: 54

Locator: DWMP-15  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-16  
 Matrix: SALTWTRSED  
 % Solids: 52.9

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
M=CV ASTM D422																				
Clay *	21		0.1		%	1.3		0.1		%	12.5		0.1		%	17.7		0.1		%
Gravel *	1.9		0.1		%	40.1	E	0.1		%	0.4		0.1		%	1.6		0.1		%
p+0.00 *	12.2		0.1		%	7.1		0.1		%	2		0.1		%	3.2		0.1		%
p+1.00 *	3.4		0.1		%	8.2		0.1		%	2.7		0.1		%	3.9		0.1		%
p+10.0 *	2.2		0.1		%	0.1		0.1		%	2.7		0.1		%	4		0.1		%
p+10.0(more than) *	13.1		0.1		%	0.85		0.1		%	6.4		0.1		%	8.6		0.1		%
p+2.00 *	1.9		0.1		%	19		0.1		%	7.1		0.1		%	8.1		0.1		%
p+3.00 *	2.9		0.1		%	19.2		0.1		%	12.2		0.1		%	12.5		0.1		%
p+4.00 *	4.7		0.1		%	3.6		0.1		%	20		0.1		%	12.3		0.1		%
p+5.00 *	7		0.1		%	0.52		0.1		%	19.6		0.1		%	17		0.1		%
p+6.00 *	18.2		0.1		%	0.22		0.1		%	11.4		0.1		%	9.9		0.1		%
p+7.00 *	17		0.1		%	0.39		0.1		%	7.2		0.1		%	7.8		0.1		%
p+8.00 *	9.7		0.1		%	0.23		0.1		%	4.9		0.1		%	6.1		0.1		%
p+9.00 *	5.7		0.1		%	0.36		0.1		%	3.3		0.1		%	5		0.1		%
p-1.00 *	1.9		0.1		%	14.8		0.1		%	0.4		0.1		%	1.6		0.1		%
p-2.00 *		<MDL	0.1		%	25.3		0.1		%		<MDL	0.1		%		<MDL	0.1		%
p-2.00(less than) *		<MDL	0.1		%		<MDL	0.1		%		<MDL	0.1		%		<MDL	0.1		%
Sand *	25.2		0.1		%	57.2		0.1		%	44		0.1		%	40		0.1		%
Silt *	51.9		0.1		%	1.4		0.1		%	43.2		0.1		%	40.8		0.1		%
M=CV EPA9060-PSEP96 (03-04-002-001)																				
Total Organic Carbon	53300		2000	4100	mg/Kg	3350		620	1230	mg/Kg	24300		930	1850	mg/Kg	17100		950	1890	mg/Kg
M=CV SM2540-G (03-01-007-001)																				
Total Solids *	24.4		0.005	0.01	%	81.2		0.005	0.01	%	54		0.005	0.01	%	52.9		0.005	0.01	%
Total Volatile Solids	14.2		0.0205	0.041	%	1.38		0.00616	0.0123	%	6.17		0.00926	0.0185	%	5.22		0.00945	0.0189	%
M=CV SM4500-NH3-G (03-03-004-001)																				
Ammonia Nitrogen	4.34		1	2.05	mg/Kg	3.19		0.31	0.616	mg/Kg	3.22		0.46	0.926	mg/Kg	2.4		0.47	0.945	mg/Kg
M=CV SM4500S2-D, EPA376.2																				
Total Sulfide	115		18	17.6	mg/Kg	111	G	9.4	9.36	mg/Kg	630		80	79.6	mg/Kg	24.6		1.7	1.7	mg/Kg
M=ES NONE																				
Sampcoordx1 *	1263045				ft	1263320				ft	1263226				ft	1263053				ft
Sampcoordx2 *	1263041				ft	1263382				ft	1263224				ft	1263040				ft
Sampcoordx3 *						1263411				ft						1263055				ft
Sampcoordy1 *	228954				ft	229635				ft	229553				ft	229449				ft
Sampcoordy2 *	228941				ft	229594				ft	229561				ft	229462				ft
Sampcoordy3 *						229539				ft						229440				ft
Sample Depth *	29				m	5				m	13				m	21				m
Sample Start Time *	1350				hr	1500				hr	1600				hr	1520				hr
Sediment Sampling Depth *	16				cm	8				cm	12				cm	15				cm
Sediment Sampling Range *	0-2 cm				none	0-2 cm				none	0-2 cm				none	0-2 cm				none
Sediment Type	20N40				none	32S31				none	23N40				none	23N40				none

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-12  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-13  
 Matrix: SALTWTRSED  
 % Solids: 24.4

Locator: DWMP-13  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-14  
 Matrix: SALTWTRSED  
 % Solids: 81.2

Locator: DWMP-14  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-15  
 Matrix: SALTWTRSED  
 % Solids: 54

Locator: DWMP-15  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-16  
 Matrix: SALTWTRSED  
 % Solids: 52.9

Parameters		- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis								
Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	
S	0			none	S	8			none	F	3			ft	F	1			ft	
Tidal Condition																				
Tide Height *																				
M=MT EPA 245.5 (06-01-004-003)																				
Mercury, Total, CVAA	0.41	<RDL	0.082	0.803	mg/Kg	0.052	<RDL	0.025	0.243	mg/Kg	0.657		0.037	0.367	mg/Kg	0.524	0.036	0.367	mg/Kg	
M=MT EPA3050A/6010B (06-02-004-002)																				
Antimony, Total, ICP		<MDL	6.1	31.4	mg/Kg		<MDL	1.8	9.36	mg/Kg	3	<RDL	2.8	14.1	mg/Kg		<MDL	2.8	13.7	mg/Kg
Arsenic, Total, ICP	15	<RDL	11	52.5	mg/Kg		<MDL	3.1	15.6	mg/Kg	9.4	<RDL	4.6	23.5	mg/Kg	9.8	<RDL	4.5	22.9	mg/Kg
Cadmium, Total, ICP		<MDL	0.61	3.14	mg/Kg		<MDL	0.18	0.936	mg/Kg	0.74	<RDL	0.28	1.41	mg/Kg	0.62	<RDL	0.28	1.37	mg/Kg
Chromium, Total, ICP	50.8		1.1	5.25	mg/Kg	17		0.31	1.56	mg/Kg	47.8		0.46	2.35	mg/Kg	52.2		0.45	2.29	mg/Kg
Copper, Total, ICP	49.2		0.82	4.18	mg/Kg	19		0.25	1.24	mg/Kg	63.3		0.37	1.89	mg/Kg	58.4		0.36	1.83	mg/Kg
Lead, Total, ICP	46.3		6.1	31.4	mg/Kg	13.7		1.8	9.36	mg/Kg	90.2		2.8	14.1	mg/Kg	73.2		2.8	13.7	mg/Kg
Nickel, Total, ICP	52		4.1	20.9	mg/Kg	20.7		1.2	6.24	mg/Kg	41.5		1.9	9.44	mg/Kg	48.6		1.8	9.15	mg/Kg
Silver, Total, ICP	0.86	<RDL	0.86	4.22	mg/Kg	0.33	<RDL	0.25	1.24	mg/Kg	4.11		0.35	1.8	mg/Kg	3.04		0.38	1.84	mg/Kg
Zinc, Total, ICP	88.5		1.1	5.25	mg/Kg	35		0.31	1.56	mg/Kg	106		0.46	2.35	mg/Kg	107		0.45	2.29	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL	1.1	2.17	ug/Kg		<MDL	0.32	0.653	ug/Kg		<MDL	0.48	0.981	ug/Kg		<MDL	0.49	1	ug/Kg
1,2-Dichlorobenzene		<MDL	1.1	2.17	ug/Kg		<MDL	0.32	0.653	ug/Kg		<MDL	0.48	0.981	ug/Kg		<MDL	0.49	1	ug/Kg
1,2-Diphenylhydrazine		<MDL	41	82	ug/Kg		<MDL	12	24.6	ug/Kg		<MDL	19	37	ug/Kg		<MDL	19	37.8	ug/Kg
1,3-Dichlorobenzene		<MDL	1.1	2.17	ug/Kg		<MDL	0.32	0.653	ug/Kg		<MDL	0.48	0.981	ug/Kg		<MDL	0.49	1	ug/Kg
1,4-Dichlorobenzene		<MDL	0.53	1.08	ug/Kg		<MDL	0.16	0.325	ug/Kg		<MDL	0.24	0.489	ug/Kg		<MDL	0.25	0.499	ug/Kg
2,4,5-Trichlorophenol		<MDL	49	98.4	ug/Kg		<MDL	15	29.6	ug/Kg		<MDL	22	44.4	ug/Kg		<MDL	23	45.4	ug/Kg
2,4,6-Trichlorophenol		<MDL	53	107	ug/Kg		<MDL	16	32	ug/Kg		<MDL	24	48.1	ug/Kg		<MDL	25	49.1	ug/Kg
2,4-Dichlorophenol		<MDL	66	131	ug/Kg		<MDL	20	39.4	ug/Kg		<MDL	30	59.3	ug/Kg		<MDL	30	60.5	ug/Kg
2,4-Dimethylphenol		<MDL	29	57.4	ug/Kg		<MDL	8.6	17.2	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL	13	26.5	ug/Kg
2,4-Dinitrotoluene		<MDL	12	24.6	ug/Kg		<MDL	3.7	7.39	ug/Kg		<MDL	5.6	11.1	ug/Kg		<MDL	5.7	11.3	ug/Kg
2,6-Dinitrotoluene		<MDL	41	82	ug/Kg		<MDL	12	24.6	ug/Kg		<MDL	19	37	ug/Kg		<MDL	19	37.8	ug/Kg
2-Chloronaphthalene		<MDL	66	131	ug/Kg		<MDL	20	39.4	ug/Kg		<MDL	30	59.3	ug/Kg		<MDL	30	60.5	ug/Kg
2-Chlorophenol		<MDL	33	65.6	ug/Kg		<MDL	9.9	19.7	ug/Kg		<MDL	15	29.6	ug/Kg		<MDL	15	30.2	ug/Kg
2-Methylnaphthalene		<MDL	57	115	ug/Kg		<MDL	17	34.5	ug/Kg		<MDL	26	51.9	ug/Kg		<MDL	26	52.9	ug/Kg
2-Methylphenol		<MDL	78	156	ug/Kg		<MDL	23	46.8	ug/Kg		<MDL	35	70.4	ug/Kg		<MDL	36	71.8	ug/Kg
2-Nitrophenol		<MDL	61	123	ug/Kg		<MDL	18	36.9	ug/Kg		<MDL	28	55.6	ug/Kg		<MDL	28	56.7	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	37	73.8	ug/Kg		<MDL	11	22.2	ug/Kg		<MDL	17	33.3	ug/Kg		<MDL	17	34	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	53	107	ug/Kg		<MDL	16	32	ug/Kg		<MDL	24	48.1	ug/Kg		<MDL	25	49.1	ug/Kg
4-Methylphenol		<MDL	66	131	ug/Kg		<MDL	20	39.4	ug/Kg		<MDL	30	59.3	ug/Kg		<MDL	30	60.5	ug/Kg
Acenaphthene		<MDL	29	57.4	ug/Kg		<MDL	8.6	17.2	ug/Kg		<MDL	13	25.9	ug/Kg		<MDL	13	26.5	ug/Kg
Acenaphthylene		<MDL	61	123	ug/Kg		<MDL	18	36.9	ug/Kg		<MDL	28	55.6	ug/Kg		<MDL	28	56.7	ug/Kg
Aniline		<MDL	78	156	ug/Kg		<MDL	23	46.8	ug/Kg		<MDL	35	70.4	ug/Kg		<MDL	36	71.8	ug/Kg
Anthracene	41	G	16	32.8	ug/Kg	28.6	G	4.9	9.85	ug/Kg	90.4	G	7.4	14.8	ug/Kg	62.4	G	7.6	15.1	ug/Kg
Benzo(a)anthracene	26.6	X	8.2	16.4	ug/Kg	16.4	X	2.5	4.93	ug/Kg	43	X	3.7	7.41	ug/Kg	38.4	X	3.8	7.56	ug/Kg
Benzo(a)pyrene		<MDL	12	24.6	ug/Kg	6.7	<RDL	3.7	7.39	ug/Kg		<MDL	5.6	11.1	ug/Kg		<MDL	5.7	11.3	ug/Kg
Benzo(b)fluoranthene	29.8	X,L	12	24.6	ug/Kg	11.5	X,L	3.7	7.39	ug/Kg	46.1	X,L	5.6	11.1	ug/Kg	45.7	X,L	5.7	11.3	ug/Kg

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-12  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-13  
 Matrix: SALTWTRSED  
 % Solids: 24.4

Locator: DWMP-13  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-14  
 Matrix: SALTWTRSED  
 % Solids: 81.2

Locator: DWMP-14  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-15  
 Matrix: SALTWTRSED  
 % Solids: 54

Locator: DWMP-15  
 Descr: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-16  
 Matrix: SALTWTRSED  
 % Solids: 52.9

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units			
- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis					
COMBINED LABS																							
Benzo(g,h,i)perylene	<MDL	X,G	33	65.6	ug/Kg	<MDL	X,G	9.9	19.7	ug/Kg	<MDL	X,G	15	29.6	ug/Kg	<MDL	X,G	15	30.2	ug/Kg			
Benzo(k)fluoranthene	<MDL	G,L	12	24.6	ug/Kg	7.65	G,L	3.7	7.39	ug/Kg	26.3	G,L	5.6	11.1	ug/Kg	27.4	G,L	5.7	11.3	ug/Kg			
Benzoic Acid	492	G	25	49.2	ug/Kg	149	G	7.4	14.8	ug/Kg	189	G	11	22.2	ug/Kg	145	G	11	22.7	ug/Kg			
Benzyl Alcohol	<MDL	X	25	49.2	ug/Kg	<MDL	X	7.4	14.8	ug/Kg	<MDL	X	11	22.2	ug/Kg	<MDL	X	11	22.7	ug/Kg			
Benzyl Butyl Phthalate	<MDL	L	25	49.2	ug/Kg	18.5	L	7.4	14.8	ug/Kg	175	L	11	22.2	ug/Kg	109	L	11	22.7	ug/Kg			
Bis(2-Chloroethoxy)Methane	<MDL		70	139	ug/Kg	<MDL		21	41.9	ug/Kg	<MDL		31	63	ug/Kg	<MDL		32	64.3	ug/Kg			
Bis(2-Chloroethyl)Ether	<MDL	G	61	123	ug/Kg	<MDL	G	18	36.9	ug/Kg	<MDL	G	28	55.6	ug/Kg	<MDL	G	28	56.7	ug/Kg			
Bis(2-Chloroisopropyl)Ether	<MDL		61	123	ug/Kg	<MDL		18	36.9	ug/Kg	<MDL		28	55.6	ug/Kg	<MDL		28	56.7	ug/Kg			
Bis(2-Ethylhexyl)Phthalate	2350	G	27	57.4	ug/Kg	181	G	8.3	17.2	ug/Kg	1490	G	12	25.9	ug/Kg	1430	G	13	26.5	ug/Kg			
Caffeine	<MDL		25	49.2	ug/Kg	<MDL		7.4	14.8	ug/Kg	<MDL		11	22.2	ug/Kg	<MDL		11	22.7	ug/Kg			
Carbazole	<MDL		29	57.4	ug/Kg	<MDL		8.6	17.2	ug/Kg	39.8		13	25.9	ug/Kg	26.7		13	26.5	ug/Kg			
Chrysene	<MDL	X,L	16	32.8	ug/Kg	16.6	X,L	4.9	9.85	ug/Kg	29.6	X,L	7.4	14.8	ug/Kg	28.2	X,L	7.6	15.1	ug/Kg			
Coprostanol	<MDL	X	57	115	ug/Kg	<MDL	X	17	34.5	ug/Kg	<MDL	X	26	51.9	ug/Kg	<MDL	X	26	52.9	ug/Kg			
Dibenzo(a,h)anthracene	<MDL	G,L	29	57.4	ug/Kg	<MDL	G,L	8.6	17.2	ug/Kg	<MDL	G,L	13	25.9	ug/Kg	<MDL	G,L	13	26.5	ug/Kg			
Dibenzofuran	<MDL		57	115	ug/Kg	<MDL		17	34.5	ug/Kg	<MDL		26	51.9	ug/Kg	<MDL		26	52.9	ug/Kg			
Diethyl Phthalate	<MDL		25	49.2	ug/Kg	<MDL		7.4	14.8	ug/Kg	<MDL		11	22.2	ug/Kg	<MDL		11	22.7	ug/Kg			
Dimethyl Phthalate	<MDL	L	45	90.2	ug/Kg	<MDL	L	14	27.1	ug/Kg	<MDL	L	20	40.7	ug/Kg	<MDL	L	21	41.6	ug/Kg			
Di-N-Butyl Phthalate	99.6	B,L	20	41	ug/Kg	56.8	B,L	6.2	12.3	ug/Kg	85.4	B,L	9.3	18.5	ug/Kg	82.4	B,L	9.5	18.9	ug/Kg			
Di-N-Octyl Phthalate	<MDL	L	33	65.6	ug/Kg	<MDL	L	9.9	19.7	ug/Kg	<MDL	L	15	29.6	ug/Kg	<MDL	L	15	30.2	ug/Kg			
Fluoranthene	<MDL	X	33	65.6	ug/Kg	25.5	X	9.9	19.7	ug/Kg	94.3	X	15	29.6	ug/Kg	77.5	X	15	30.2	ug/Kg			
Fluorene	<MDL		53	107	ug/Kg	40.6		16	32	ug/Kg	50.6		24	48.1	ug/Kg	26	<RDL	25	49.1	ug/Kg			
Hexachlorobenzene	<MDL	G	2.7	5.45	ug/Kg	<MDL	G	0.81	1.64	ug/Kg	<MDL	G	1.2	2.46	ug/Kg	<MDL	G	1.2	2.51	ug/Kg			
Hexachlorobutadiene	<MDL	G	3.1	6.15	ug/Kg	<MDL	G	0.92	1.85	ug/Kg	<MDL	G	1.4	2.78	ug/Kg	<MDL	G	1.4	2.84	ug/Kg			
Hexachloroethane	<MDL	X	61	123	ug/Kg	<MDL	X	18	36.9	ug/Kg	<MDL	X	28	55.6	ug/Kg	<MDL	X	28	56.7	ug/Kg			
Indeno(1,2,3-Cd)Pyrene	<MDL	X	37	73.8	ug/Kg	<MDL	X	11	22.2	ug/Kg	<MDL	X	17	33.3	ug/Kg	<MDL	X	17	34	ug/Kg			
Isophorone	<MDL		78	156	ug/Kg	<MDL		23	46.8	ug/Kg	<MDL		35	70.4	ug/Kg	<MDL		36	71.8	ug/Kg			
Naphthalene	<MDL	G	57	115	ug/Kg	<MDL	G	17	34.5	ug/Kg	<MDL	G	26	51.9	ug/Kg	<MDL	G	26	52.9	ug/Kg			
Nitrobenzene	<MDL	G	66	131	ug/Kg	<MDL	G	20	39.4	ug/Kg	<MDL	G	30	59.3	ug/Kg	<MDL	G	30	60.5	ug/Kg			
N-Nitrosodimethylamine	<MDL		82	164	ug/Kg	<MDL		25	49.3	ug/Kg	<MDL		37	74.1	ug/Kg	<MDL		38	75.6	ug/Kg			
N-Nitrosodi-N-Propylamine	<MDL		37	73.8	ug/Kg	<MDL		11	22.2	ug/Kg	<MDL		17	33.3	ug/Kg	<MDL		17	34	ug/Kg			
N-Nitrosodiphenylamine	<MDL		82	164	ug/Kg	<MDL		25	49.3	ug/Kg	<MDL		37	74.1	ug/Kg	<MDL		38	75.6	ug/Kg			
Pentachlorophenol	<MDL	G	20	41	ug/Kg	<MDL	G	6.2	12.3	ug/Kg	<MDL	G	9.3	18.5	ug/Kg	<MDL	G	9.5	18.9	ug/Kg			
Phenanthrene	<MDL	X,G	16	32.8	ug/Kg	15.4	X,G	4.9	9.85	ug/Kg	49.8	X,G	7.4	14.8	ug/Kg	38.9	X,G	7.6	15.1	ug/Kg			
Phenol	<MDL	G	37	73.8	ug/Kg	<MDL	G	11	22.2	ug/Kg	<MDL	G	17	33.3	ug/Kg	<MDL	G	17	34	ug/Kg			
Pyrene	<MDL	X,G	16	32.8	ug/Kg	<MDL	X,G	4.9	9.85	ug/Kg	15	X,G	7.4	14.8	ug/Kg	12	<RDL	X,G	7.6	15.1	ug/Kg		
M=OR EPA 8081A/8082 (7-3-03-002)																							
4,4'-DDD	5.08	E	1.1	2.18	ug/Kg	0.974	E	0.33	0.656	ug/Kg	20	E	0.5	0.987	ug/Kg	13.6	E	0.51	1.01	ug/Kg			
4,4'-DDE	1.1	<RDL	G,E	1.1	2.18	ug/Kg	<MDL	G,E	0.33	0.656	ug/Kg	3.07	G,E	0.5	0.987	ug/Kg	2.36	G,E	0.51	1.01	ug/Kg		
4,4'-DDT	<MDL	E	1.1	2.18	ug/Kg	<MDL	E	0.33	0.656	ug/Kg	<MDL	E	0.5	0.987	ug/Kg	<MDL	E	0.51	1.01	ug/Kg			
Aldrin	<MDL		1.1	2.18	ug/Kg	<MDL		0.33	0.656	ug/Kg	<MDL		0.5	0.987	ug/Kg	<MDL		0.51	1.01	ug/Kg			
Alpha-BHC	<MDL		1.1	2.18	ug/Kg	<MDL		0.33	0.656	ug/Kg	<MDL		0.5	0.987	ug/Kg	<MDL		0.51	1.01	ug/Kg			

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-12  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-13  
 Matrix: SALTWTRSED  
 % Solids: 24.4

Locator: DWMP-13  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-14  
 Matrix: SALTWTRSED  
 % Solids: 81.2

Locator: DWMP-14  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-15  
 Matrix: SALTWTRSED  
 % Solids: 54

Locator: DWMP-15  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-16  
 Matrix: SALTWTRSED  
 % Solids: 52.9

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
Aroclor 1016		<MDL	11	21.8	ug/Kg		<MDL	3.3	6.56	ug/Kg		<MDL	5	9.87	ug/Kg		<MDL	5.1	10.1	ug/Kg
Aroclor 1221		<MDL	11	21.8	ug/Kg		<MDL	3.3	6.56	ug/Kg		<MDL	5	9.87	ug/Kg		<MDL	5.1	10.1	ug/Kg
Aroclor 1232		<MDL	11	21.8	ug/Kg		<MDL	3.3	6.56	ug/Kg		<MDL	5	9.87	ug/Kg		<MDL	5.1	10.1	ug/Kg
Aroclor 1242		<MDL	11	21.8	ug/Kg		<MDL	3.3	6.56	ug/Kg		<MDL	5	9.87	ug/Kg		<MDL	5.1	10.1	ug/Kg
Aroclor 1248	57.8		11	21.8	ug/Kg	6.9		3.3	6.56	ug/Kg	133		5	9.87	ug/Kg	125		5.1	10.1	ug/Kg
Aroclor 1254	123		11	21.8	ug/Kg	16.7		3.3	6.56	ug/Kg	307		5	9.87	ug/Kg	285		5.1	10.1	ug/Kg
Aroclor 1260	111	G	11	21.8	ug/Kg	<MDL,G		3.3	6.56	ug/Kg	193	G	5	9.87	ug/Kg	191	G	5.1	10.1	ug/Kg
Beta-BHC		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Chlordane		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	1.9	3.7	ug/Kg		<MDL	1.9	3.78	ug/Kg
Delta-BHC		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Dieldrin		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Endosulfan I		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Endosulfan II		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Endosulfan Sulfate		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Endrin		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Endrin Aldehyde		<MDL,G	1.1	2.18	ug/Kg		<MDL,G	0.33	0.656	ug/Kg		<MDL,G	0.5	0.987	ug/Kg		<MDL,G	0.51	1.01	ug/Kg
Gamma-BHC (Lindane)		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Heptachlor		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Heptachlor Epoxide		<MDL	1.1	2.18	ug/Kg		<MDL	0.33	0.656	ug/Kg		<MDL	0.5	0.987	ug/Kg		<MDL	0.51	1.01	ug/Kg
Methoxychlor		<MDL,E	5.3	10.9	ug/Kg		<MDL,E	1.6	3.29	ug/Kg		<MDL,E	2.4	4.94	ug/Kg		<MDL,E	2.5	5.05	ug/Kg
Toxaphene		<MDL	11	21.8	ug/Kg		<MDL,E	3.3	6.56	ug/Kg		<MDL,E	5	9.87	ug/Kg		<MDL,E	5.1	10.1	ug/Kg
M=OR EPA 8260B (7-3-02-002)																				
1,1,2-Trichloroethylene		<MDL	20	41	ug/Kg		<MDL	6.2	12.3	ug/Kg		<MDL	9.3	18.5	ug/Kg		<MDL	9.5	18.9	ug/Kg
Ethylbenzene		<MDL	20	41	ug/Kg		<MDL	6.2	12.3	ug/Kg		<MDL	9.3	18.5	ug/Kg		<MDL	9.5	18.9	ug/Kg
Tetrachloroethylene		<MDL	20	41	ug/Kg		<MDL	6.2	12.3	ug/Kg		<MDL	9.3	18.5	ug/Kg		<MDL	9.5	18.9	ug/Kg
Total Xylenes		<MDL	20	41	ug/Kg		<MDL	6.2	12.3	ug/Kg		<MDL	9.3	18.5	ug/Kg		<MDL	9.5	18.9	ug/Kg
* Not converted to dry weight basis for this parameter																				

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-16  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-17  
 Matrix: SALTWTRSED  
 % Solids: 47.4

Locator: DWMP-BREF1  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-18  
 Matrix: SALTWTRSED  
 % Solids: 71.8

Locator: DWMP-BREF1  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-19  
 Matrix: SALTWTRSED  
 % Solids: 69.5

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
- Dry Weight Basis						- Dry Weight Basis					- Dry Weight Basis				
COMBINED LABS															
M=CV ASTM D422															
Clay *	20.6		0.1		%	4.6		0.1		%	5.3		0.1		%
Gravel *	16.3		0.1		%	12.5	E	0.1		%	5.4	E	0.1		%
p+0.00 *	6.9		0.1		%	2.8		0.1		%	2.2		0.1		%
p+1.00 *	6		0.1		%	6.6		0.1		%	6.2		0.1		%
p+10.0 *	4.7		0.1		%	0.97		0.1		%	1.2		0.1		%
p+10.0(more than) *	8.9		0.1		%	2.4		0.1		%	2.7		0.1		%
p+2.00 *	7		0.1		%	24.2		0.1		%	24.2		0.1		%
p+3.00 *	7.4		0.1		%	22.7		0.1		%	27.4		0.1		%
p+4.00 *	6.9		0.1		%	10.6		0.1		%	14.1		0.1		%
p+5.00 *	8.6		0.1		%	9.3		0.1		%	9.2		0.1		%
p+6.00 *	8.6		0.1		%	3.4		0.1		%	2.9		0.1		%
p+7.00 *	5.8		0.1		%	2		0.1		%	1.7		0.1		%
p+8.00 *	5.9		0.1		%	1.3		0.1		%	1.2		0.1		%
p+9.00 *	7		0.1		%	1.2		0.1		%	1.4		0.1		%
p-1.00 *	9.8		0.1		%	4.2		0.1		%	4		0.1		%
p-2.00 *	6.6		0.1		%	8.3		0.1		%	1.4		0.1		%
p-2.00(less than) *		<MDL	0.1		%		<MDL	0.1		%		<MDL	0.1		%
Sand *	34.1		0.1		%	66.9		0.1		%	74.2		0.1		%
Silt *	28.9		0.1		%	16		0.1		%	15.1		0.1		%
M=CV EPA9060-PSEP96 (03-04-002-001)															
Total Organic Carbon	17000		1100	2110	mg/Kg	8640		700	1390	mg/Kg	10100		720	1440	mg/Kg
M=CV SM2540-G (03-01-007-001)															
Total Solids *	47.4		0.005	0.01	%	71.8		0.005	0.01	%	69.5		0.005	0.01	%
Total Volatile Solids	5.82		0.0105	0.0211	%	2.55		0.00696	0.0139	%	2.55		0.00719	0.0144	%
M=CV SM4500-NH3-G (03-03-004-001)															
Ammonia Nitrogen	2.13		0.53	1.05	mg/Kg	1.6		0.35	0.696	mg/Kg	1.73		0.36	0.719	mg/Kg
M=CV SM4500S2-D, EPA376.2															
Total Sulfide	4.43		2	2.03	mg/Kg		<MDL,G	2.6	2.65	mg/Kg		<MDL,G	2.2	2.16	mg/Kg
M=ES NONE															
Sampcoordx1 *	1262981				ft	1259451				ft	1259458				ft
Sampcoordx2 *	1262964				ft	1259461				ft	1259465				ft
Sampcoordx3 *						1259458				ft					
Sampcoordy1 *	229347				ft	218625				ft	218631				ft
Sampcoordy2 *	229356				ft	218629				ft	218641				ft
Sampcoordy3 *						218631				ft					
Sample Depth *	24				m	28				m	28				m
Sample Start Time *	1430				hr	1143				hr	1220				hr
Sediment Sampling Depth *	14				cm	6				cm	7				cm
Sediment Sampling Range *	0-2 cm				none	0-2 cm				none	0-2 cm				none
Sediment Type	23N40				none	32S30				none	32S40				none

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-16  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-17  
 Matrix: SALTWTRSED  
 % Solids: 47.4

Locator: DWMP-BREF1  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-18  
 Matrix: SALTWTRSED  
 % Solids: 71.8

Locator: DWMP-BREF1  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-19  
 Matrix: SALTWTRSED  
 % Solids: 69.5

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
- Dry Weight Basis						- Dry Weight Basis					- Dry Weight Basis				
COMBINED LABS															
Tidal Condition	F				none	F				none	F				none
Tide Height *	0.5				ft	5.5				ft	6				ft
M=MT EPA 245.5 (06-01-004-003)															
Mercury, Total, CVAA	0.34	<RDL	0.042	0.414	mg/Kg	0.543		0.026	0.269	mg/Kg	0.358		0.027	0.279	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)															
Antimony, Total, ICP		<MDL,G	3.2	15.9	mg/Kg		<MDL,G	2.1	10.5	mg/Kg		<MDL,G	2.2	10.6	mg/Kg
Arsenic, Total, ICP	12	<RDL	5.3	26.4	mg/Kg	6.5	<RDL	3.5	17.5	mg/Kg	8.2	<RDL	3.6	17.7	mg/Kg
Cadmium, Total, ICP		<MDL,L	0.32	1.59	mg/Kg		<MDL,L	0.21	1.05	mg/Kg		<MDL,L	0.22	1.06	mg/Kg
Chromium, Total, ICP	62.2		0.53	2.64	mg/Kg	29.9		0.35	1.75	mg/Kg	26		0.36	1.77	mg/Kg
Copper, Total, ICP	52.3		0.42	2.11	mg/Kg	30.1		0.28	1.41	mg/Kg	31.5		0.29	1.42	mg/Kg
Lead, Total, ICP	42.6		3.2	15.9	mg/Kg	29		2.1	10.5	mg/Kg	31.5		2.2	10.6	mg/Kg
Nickel, Total, ICP	65.2		2.1	10.6	mg/Kg	23.8		1.4	7.02	mg/Kg	23.7		1.4	7.09	mg/Kg
Silver, Total, ICP	1.2	<RDL	0.42	2.15	mg/Kg		<MDL	0.29	1.43	mg/Kg		<MDL	0.29	1.45	mg/Kg
Zinc, Total, ICP	101		0.53	2.64	mg/Kg	50.1		0.35	1.75	mg/Kg	52.4		0.36	1.77	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)															
1,2,4-Trichlorobenzene		<MDL,G	0.55	1.12	ug/Kg		<MDL,G	0.36	0.738	ug/Kg		<MDL,G	0.37	0.763	ug/Kg
1,2-Dichlorobenzene		<MDL,G	0.55	1.12	ug/Kg		<MDL,G	0.36	0.738	ug/Kg		<MDL,G	0.37	0.763	ug/Kg
1,2-Diphenylhydrazine		<MDL	21	42.2	ug/Kg		<MDL	14	27.9	ug/Kg		<MDL	14	28.8	ug/Kg
1,3-Dichlorobenzene		<MDL,X	0.55	1.12	ug/Kg		<MDL,X	0.36	0.738	ug/Kg		<MDL,X	0.37	0.763	ug/Kg
1,4-Dichlorobenzene		<MDL,G	0.27	0.557	ug/Kg		<MDL,G	0.18	0.368	ug/Kg		<MDL,G	0.19	0.38	ug/Kg
2,4,5-Trichlorophenol		<MDL	25	50.6	ug/Kg		<MDL	17	33.4	ug/Kg		<MDL	17	34.5	ug/Kg
2,4,6-Trichlorophenol		<MDL	27	54.9	ug/Kg		<MDL	18	36.2	ug/Kg		<MDL	19	37.4	ug/Kg
2,4-Dichlorophenol		<MDL	34	67.5	ug/Kg		<MDL	22	44.6	ug/Kg		<MDL	23	46	ug/Kg
2,4-Dimethylphenol		<MDL	15	29.5	ug/Kg		<MDL	9.7	19.5	ug/Kg		<MDL	10	20.1	ug/Kg
2,4-Dinitrotoluene		<MDL,L	6.3	12.7	ug/Kg		<MDL,L	4.2	8.36	ug/Kg		<MDL,L	4.3	8.63	ug/Kg
2,6-Dinitrotoluene		<MDL,L	21	42.2	ug/Kg		<MDL,L	14	27.9	ug/Kg		<MDL,L	14	28.8	ug/Kg
2-Chloronaphthalene		<MDL	34	67.5	ug/Kg		<MDL	22	44.6	ug/Kg		<MDL	23	46	ug/Kg
2-Chlorophenol		<MDL,G	17	33.8	ug/Kg		<MDL,G	11	22.3	ug/Kg		<MDL,G	12	23	ug/Kg
2-Methylnaphthalene		<MDL	30	59.1	ug/Kg		<MDL	19	39	ug/Kg		<MDL	20	40.3	ug/Kg
2-Methylphenol		<MDL	40	80.2	ug/Kg		<MDL	26	52.9	ug/Kg		<MDL	27	54.7	ug/Kg
2-Nitrophenol		<MDL	32	63.3	ug/Kg		<MDL	21	41.8	ug/Kg		<MDL	22	43.2	ug/Kg
4-Bromophenyl Phenyl Ether		<MDL	19	38	ug/Kg		<MDL	13	25.1	ug/Kg		<MDL	13	25.9	ug/Kg
4-Chlorophenyl Phenyl Ether		<MDL	27	54.9	ug/Kg		<MDL	18	36.2	ug/Kg		<MDL	19	37.4	ug/Kg
4-Methylphenol		<MDL	34	67.5	ug/Kg		<MDL	22	44.6	ug/Kg		<MDL	23	46	ug/Kg
Acenaphthene	15	<RDL	15	29.5	ug/Kg		<MDL	9.7	19.5	ug/Kg	14	<RDL	10	20.1	ug/Kg
Acenaphthylene		<MDL	32	63.3	ug/Kg		<MDL	21	41.8	ug/Kg		<MDL	22	43.2	ug/Kg
Aniline		<MDL,X	40	80.2	ug/Kg		<MDL,X	26	52.9	ug/Kg		<MDL,X	27	54.7	ug/Kg
Anthracene	87.6	G	8.4	16.9	ug/Kg	51.5	G	5.6	11.1	ug/Kg	62.4	G	5.8	11.5	ug/Kg
Benzo(a)anthracene	163	X	4.2	8.44	ug/Kg	124	X	2.8	5.57	ug/Kg	168	X	2.9	5.76	ug/Kg
Benzo(a)pyrene	22.4	X	6.3	12.7	ug/Kg	153	X	4.2	8.36	ug/Kg	191	X	4.3	8.63	ug/Kg
Benzo(b)fluoranthene	215	X,L	6.3	12.7	ug/Kg	202	X,L	4.2	8.36	ug/Kg	255	X,L	4.3	8.63	ug/Kg

# King County Environmental Lab Analytical Report

PROJECT: 423001

Locator: DWMP-16  
 Descrp: DENNY WAY MONITORI  
 Sampled: Apr 10, 2001  
 Lab ID: L20541-17  
 Matrix: SALTWTRSED  
 % Solids: 47.4

Locator: DWMP-BREF1  
 Descrp: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-18  
 Matrix: SALTWTRSED  
 % Solids: 71.8

Locator: DWMP-BREF1  
 Descrp: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-19  
 Matrix: SALTWTRSED  
 % Solids: 69.5

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units		
- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis					
COMBINED LABS																	
Benzo(g,h,i)perylene		<MDL,X,G	17	33.8	ug/Kg	71.2	X,G	11	22.3	ug/Kg	80.9	X,G	12	23	ug/Kg		
Benzo(k)fluoranthene	111	G,L	6.3	12.7	ug/Kg	79.7	G,L	4.2	8.36	ug/Kg	102	G,L	4.3	8.63	ug/Kg		
Benzoic Acid	173		13	25.3	ug/Kg	174		8.4	16.7	ug/Kg	210		8.6	17.3	ug/Kg		
Benzyl Alcohol		<MDL,X	13	25.3	ug/Kg		<MDL,X	8.4	16.7	ug/Kg		<MDL,X	8.6	17.3	ug/Kg		
Benzyl Butyl Phthalate	32.1	L	13	25.3	ug/Kg	15	<RDL,L	8.4	16.7	ug/Kg		<MDL,L	8.6	17.3	ug/Kg		
Bis(2-Chloroethoxy)Methane		<MDL	36	71.7	ug/Kg		<MDL	24	47.4	ug/Kg		<MDL	24	48.9	ug/Kg		
Bis(2-Chloroethyl)Ether		<MDL,G	32	63.3	ug/Kg		<MDL,G	21	41.8	ug/Kg		<MDL,G	22	43.2	ug/Kg		
Bis(2-Chloroisopropyl)Ether		<MDL	32	63.3	ug/Kg		<MDL	21	41.8	ug/Kg		<MDL	22	43.2	ug/Kg		
Bis(2-Ethylhexyl)Phthalate	354	G	14	29.5	ug/Kg	57.8	G	9.3	19.5	ug/Kg	37	G	9.6	20.1	ug/Kg		
Caffeine		<MDL	13	25.3	ug/Kg		<MDL	8.4	16.7	ug/Kg		<MDL	8.6	17.3	ug/Kg		
Carbazole	19	<RDL	15	29.5	ug/Kg	13	<RDL	9.7	19.5	ug/Kg	14	<RDL	10	20.1	ug/Kg		
Chrysene	184	X,L	8.4	16.9	ug/Kg	167	X,L	5.6	11.1	ug/Kg	212	X,L	5.8	11.5	ug/Kg		
Coprostanol		<MDL,X	30	59.1	ug/Kg		<MDL,X	19	39	ug/Kg		<MDL,X	20	40.3	ug/Kg		
Dibenzo(a,h)anthracene	16	<RDL,G,L	15	29.5	ug/Kg	20.9	G,L	9.7	19.5	ug/Kg	29.1	G,L	10	20.1	ug/Kg		
Dibenzofuran		<MDL	30	59.1	ug/Kg		<MDL	19	39	ug/Kg		<MDL	20	40.3	ug/Kg		
Diethyl Phthalate		<MDL	13	25.3	ug/Kg		<MDL	8.4	16.7	ug/Kg		<MDL	8.6	17.3	ug/Kg		
Dimethyl Phthalate		<MDL,L	23	46.4	ug/Kg		<MDL,L	15	30.6	ug/Kg		<MDL,L	16	31.7	ug/Kg		
Di-N-Butyl Phthalate	78.7	B,L	11	21.1	ug/Kg	24	B,L	7	13.9	ug/Kg	29.2	B,L	7.2	14.4	ug/Kg		
Di-N-Octyl Phthalate		<MDL,L	17	33.8	ug/Kg		<MDL,L	11	22.3	ug/Kg		<MDL,L	12	23	ug/Kg		
Fluoranthene	312	X	17	33.8	ug/Kg	269	X	11	22.3	ug/Kg	388	X	12	23	ug/Kg		
Fluorene		<MDL	27	54.9	ug/Kg		<MDL	18	36.2	ug/Kg	19	<RDL	19	37.4	ug/Kg		
Hexachlorobenzene		<MDL,G	1.4	2.81	ug/Kg		<MDL,G	0.92	1.85	ug/Kg		<MDL,G	0.95	1.91	ug/Kg		
Hexachlorobutadiene		<MDL,G	1.6	3.16	ug/Kg		<MDL,G	1	2.09	ug/Kg		<MDL,G	1.1	2.16	ug/Kg		
Hexachloroethane		<MDL,X	32	63.3	ug/Kg		<MDL,X	21	41.8	ug/Kg		<MDL,X	22	43.2	ug/Kg		
Indeno(1,2,3-Cd)Pyrene		<MDL,X	19	38	ug/Kg	84	X	13	25.1	ug/Kg	100	X	13	25.9	ug/Kg		
Isophorone		<MDL	40	80.2	ug/Kg		<MDL	26	52.9	ug/Kg		<MDL	27	54.7	ug/Kg		
Naphthalene		<MDL,G	30	59.1	ug/Kg		<MDL,G	19	39	ug/Kg		<MDL,G	20	40.3	ug/Kg		
Nitrobenzene		<MDL,G	34	67.5	ug/Kg		<MDL,G	22	44.6	ug/Kg		<MDL,G	23	46	ug/Kg		
N-Nitrosodimethylamine		<MDL	42	84.4	ug/Kg		<MDL	28	55.7	ug/Kg		<MDL	29	57.6	ug/Kg		
N-Nitrosodi-N-Propylamine		<MDL	19	38	ug/Kg		<MDL	13	25.1	ug/Kg		<MDL	13	25.9	ug/Kg		
N-Nitrosodiphenylamine		<MDL	42	84.4	ug/Kg		<MDL	28	55.7	ug/Kg		<MDL	29	57.6	ug/Kg		
Pentachlorophenol		<MDL	11	21.1	ug/Kg		<MDL	7	13.9	ug/Kg		<MDL	7.2	14.4	ug/Kg		
Phenanthrene	168	X,G	8.4	16.9	ug/Kg	122	X,G	5.6	11.1	ug/Kg	139	X,G	5.8	11.5	ug/Kg		
Phenol		<MDL	19	38	ug/Kg		<MDL	13	25.1	ug/Kg		<MDL	13	25.9	ug/Kg		
Pyrene	57.6	X,G	8.4	16.9	ug/Kg	231	X,G	5.6	11.1	ug/Kg	269	X,G	5.8	11.5	ug/Kg		
M=OR EPA 8081A/8082 (7-3-03-002)																	
4,4'-DDD	3.12	E	0.57	1.12	ug/Kg	0.63	<RDL,E	0.38	0.742	ug/Kg	1.15	E	0.39	0.767	ug/Kg		
4,4'-DDE		<MDL,G,E	0.57	1.12	ug/Kg		<MDL,G,E	0.38	0.742	ug/Kg		<MDL,G,E	0.39	0.767	ug/Kg		
4,4'-DDT		<MDL,E	0.57	1.12	ug/Kg		<MDL,E	0.38	0.742	ug/Kg		<MDL,E	0.39	0.767	ug/Kg		
Aldrin		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	2.7	5.37	ug/Kg		
Alpha-BHC		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		

# King County Environmental Lab Analytical Report

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 % Solids: 47.4

Locator: DWMP-BREF1  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-18  
 Matrix: SALTWTRSED  
 % Solids: 71.8

Locator: DWMP-BREF1  
 Descrip: DENNY WAY MONITORI  
 Sampled: Apr 19, 2001  
 Lab ID: L20541-19  
 Matrix: SALTWTRSED  
 % Solids: 69.5

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units		
- Dry Weight Basis						- Dry Weight Basis						- Dry Weight Basis					
COMBINED LABS																	
Aroclor 1016		<MDL	5.7	11.2	ug/Kg		<MDL	3.8	7.42	ug/Kg		<MDL	3.9	7.67	ug/Kg		
Aroclor 1221		<MDL	5.7	11.2	ug/Kg		<MDL	3.8	7.42	ug/Kg		<MDL	3.9	7.67	ug/Kg		
Aroclor 1232		<MDL	5.7	11.2	ug/Kg		<MDL	3.8	7.42	ug/Kg		<MDL	3.9	7.67	ug/Kg		
Aroclor 1242		<MDL	5.7	11.2	ug/Kg		<MDL	3.8	7.42	ug/Kg		<MDL	3.9	7.67	ug/Kg		
Aroclor 1248	29.3		5.7	11.2	ug/Kg	7.56		3.8	7.42	ug/Kg	8.65		3.9	7.67	ug/Kg		
Aroclor 1254	66.5		5.7	11.2	ug/Kg	12.3		3.8	7.42	ug/Kg	18.8		3.9	7.67	ug/Kg		
Aroclor 1260	62.7	G	5.7	11.2	ug/Kg	12.1	G	3.8	7.42	ug/Kg	15.3	G	3.9	7.67	ug/Kg		
Beta-BHC		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Chlordane		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Delta-BHC		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Dieldrin		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Endosulfan I		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Endosulfan II		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Endosulfan Sulfate		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Endrin		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Endrin Aldehyde		<MDL,G	0.57	1.12	ug/Kg		<MDL,G	0.38	0.742	ug/Kg		<MDL,G	0.39	0.767	ug/Kg		
Gamma-BHC (Lindane)		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Heptachlor		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Heptachlor Epoxide		<MDL	0.57	1.12	ug/Kg		<MDL	0.38	0.742	ug/Kg		<MDL	0.39	0.767	ug/Kg		
Methoxychlor		<MDL,E	2.7	5.63	ug/Kg		<MDL,E	1.8	3.72	ug/Kg		<MDL,E	1.9	3.84	ug/Kg		
Toxaphene		<MDL,E	5.7	11.2	ug/Kg		<MDL,E	3.8	7.42	ug/Kg		<MDL,E	3.9	7.67	ug/Kg		
M=OR EPA 8260B (7-3-02-002)																	
1,1,2-Trichloroethylene		<MDL	11	21.1	ug/Kg		<MDL	7	13.9	ug/Kg		<MDL	7.2	14.4	ug/Kg		
Ethylbenzene		<MDL	11	21.1	ug/Kg		<MDL	7	13.9	ug/Kg		<MDL	7.2	14.4	ug/Kg		
Tetrachloroethylene		<MDL	11	21.1	ug/Kg		<MDL	7	13.9	ug/Kg		<MDL	7.2	14.4	ug/Kg		
Total Xylenes		<MDL	11	21.1	ug/Kg		<MDL	7	13.9	ug/Kg		<MDL	7.2	14.4	ug/Kg		

\* Not converted to dry weight basis for this parameter




**APPENDIX B**  
**SEDIMENT CHEMISTRY QUALITY ASSURANCE REVIEW**

**KING COUNTY ENVIRONMENTAL LABORATORY  
QUALITY ASSURANCE REVIEW**

**For**

**Pre-Construction Sediment Characterization Study  
Denny Way / Lake Union CSO Control Project**

Prepared by:



Name Colin Elliott

Title QA Officer

Date

Reviewed by:



Name Fritz Grothkopp

Title Lab Project Manager

Date

King County Environmental Laboratory  
322 West Ewing Street  
Seattle, Washington 98119-1507  
(206) 684-2300

## INTRODUCTION

This quality assurance (QA) narrative is intended to document the QA review conducted on the chemistry analyses performed for the Denny Way / Lake Union CSO Pre-construction Sediment Characterization Project. The QA narrative is organized into the five sections listed below.

- General Comments
- Sample Collection
- Conventional Analyses
- Metal Chemistry
- Organic Chemistry

An overview of the approach used for the QA review is detailed in the *General Comments* section. Additional information specific to each analysis is included in the appropriate analytical section.

This QA review and narrative (specifically defined as QA1) have been conducted in accordance with guidelines established through the Puget Sound Dredged Disposal Analysis (PSDDA) program and the Sediment Management Standards (WAC 173-204-610). Other approaches incorporated in the QA review have been established through collaboration between the King County Environmental Laboratory (KC Laboratory) and the Washington State Department of Ecology (Ecology) Sediment Management Unit.

## GENERAL COMMENTS

### **Scope of Samples Submitted**

This QA review is associated with marine sediment samples collected in April, 2001 as part of the Denny Way / Lake Union CSO Pre-construction Sediment Characterization Project.

Except where noted in the subcontracting sections of this QA review, all analyses have been conducted by the King County Environmental Laboratory (KCEL). Sediment analytical data are reported with associated data qualifiers and have undergone QA1 review, as summarized in this narrative report.

### **Completeness**

Completeness has been evaluated for this data submission and QA review by considering the following criteria:

- Comparing reported data to the planned project analyses summarized in Table 1.
- Compliance with storage conditions and holding times.
- Frequency of analysis of the complete set of quality control (QC) samples outlined in Table 2.

### **Subcontracted Analyses**

Analyses that have been subcontracted and the issues associated with these subcontracted analyses are noted in this narrative.

### **Methods**

Analytical methods are noted in the applicable analytical sections of this QA review.

### **Target Lists**

The reported target lists have been compared to the target analytes listed in *Table 1 - Marine Sediment Quality Standards Chemical Criteria* and *Table 3 - Puget Sound Marine Sediment Cleanup Screening Levels Chemical Criteria* contained in Chapter 173-204 WAC.

### **Detection Limits**

The KC Laboratory distinguishes between the reporting detection limit (RDL) and the method detection limit (MDL).

- The RDL is defined as *the minimum concentration of a chemical constituent that can be reliably quantified.*
- The MDL is defined as *the minimum concentration of a chemical constituent that can be detected.*

Some subcontracted laboratory data are available with an MDL only, in accordance with the subcontracting laboratory policies. All analytical parameters are reported with detection limit(s). For some methods the detection limits reported may vary from sample to sample depending on the amount of sample analyzed and any additional dilutions required.

### **Storage Conditions and Holding Times**

Storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The approach used to evaluate Total Organic Carbon for holding time has been established between the KC Laboratory and Ecology during previous QA1 review efforts. Extraction and analysis holding times for each method are summarized in each analytical section.

**Method Blanks**

Method blank results have been used to evaluate the possible laboratory contamination of samples. Method blank results have been reviewed for the presence of analytes detected at or greater than the MDL.

**Standard Reference Materials**

Standard reference material (SRM) recoveries have been used to evaluate possible low or high analytical bias on a batch-specific basis. SRM analysis is included with metals and selected organic and conventional parameters (see Table 2). SRMs are purchased from the National Institute of Standards and Technology (NIST) or National Research Council of Canada and have certified analyte values. Lab Control Samples (or spiked blanks) may also be analyzed by the analytical laboratory as part of overall quality control but the results are not used to qualify the sample data.

**Matrix Spikes**

Matrix spike recoveries have been used to evaluate possible low or high analytical bias on a matrix and batch-specific basis. Matrix spikes are analyzed with metals, organics and selected conventional parameters (see Table 2).

**Laboratory Replicate Samples**

Replicate analysis (laboratory duplicates or triplicates) is used as an indicator of method precision and is used to qualify data on an analyte and batch-specific basis. Not all replicate data are used, however, as an indicator for data qualification. Only sets of replicate results which include at least one result greater than the RDL are considered for data qualification. These guidelines have been used to account for the fact that precision obtained near the detection limit is not representative of precision obtained throughout the entire analytical range.

**Surrogates**

Surrogate recoveries have been used to evaluate possible low or high analytical bias on a sample-specific basis. Surrogates are only analyzed for organic parameters.

**Data Qualifiers**

The data qualification system used for this data submission is presented in Table 3. These data qualifiers address situations that require qualification and generally conform to QA1 guidance. Changes made to SRM data qualification have been discussed with and approved by the Sediment Management Unit of Ecology. Table 3 also shows the qualifiers used for the Sedqual electronic data format.

**Units and Significant Figures**

Data have been reported in accordance with laboratory policy at the time of data generation. Data generally have been reported to three significant figures if above the RDL and two significant figures if equal to or below the RDL.

## SAMPLE COLLECTION

This section describes sampling activities associated with the collection of 17 marine sediment samples on 4/9-19/2001. All sampling activities were conducted following guidance suggested in the Puget Sound Protocols (PSEP, 1996 and 1998).

### **Sampling Locations and Station Positioning**

Sampling locations (stations) were selected and the prescribed coordinates determined prior to field activities. The prescribed station coordinates are presented in the following table. Also presented in the table are the actual coordinates recorded during sampling activities. All station coordinates are recorded in state plane coordinate system North American Datum 1983 (NAD83).

Lab ID #	Date Collected	Station Name	Prescribed Northing	Field Northing	Prescribed Easting	Field Easting
L20541-1	04/09/01	DWMP-01	228813	228811	1264047	1264048
	04/09/01			228810		1264052
L20541-2	04/09/01	DWMP-02	228770	228771	1263919	1263916
	04/09/01			228765		1263926
	04/09/01			228772		1263923
L20541-3	04/09/01	DWMP-03	228638	228644	1263846	1263845
	04/09/01			228637		1263855
L20541-4	04/09/01	DWMP-04	228546	228557	1263631	1263631
	04/09/01			228539		1263630
	04/09/01			228552		1263638
L20541-5	04/10/01	DWMP-05	229041	229037	1263836	1263840
	04/10/01			229032		1263838
L20541-6	04/09/01	DWMP-06	228839	228845	1263542	1263543
	04/09/01			228851		1263538
L20541-7	04/09/01	DWMP-07	228660	228656	1263350	1263346
	04/09/01			228663		1263350
	04/09/01			228658		1263351
L20541-8	04/10/01	DWMP-08	228907	228911	1263341	1263326
	04/10/01			228920		1263335
	04/10/01			228914		1263336
L20541-9	04/10/01	DWMP-09	228806	228815	1263215	1263210
	04/10/01			228809		1263219
L20541-10	04/19/01	DWMP-10	229326	229324	1263565	1263560
	04/19/01			229321		1263567
L20541-11	04/10/01	DWMP-11	229156	229160	1263272	1263263
	04/10/01			229161		1263283
	04/10/01			229161		1263279
L20541-12	04/10/01	DWMP-12	228963	228950	1263055	1263052
	04/10/01			228949		1263054
	04/10/01			228971		1263055
L20541-13	04/10/01	DWMP-12 (field replicate)	228963	228954	1263055	1263045
	04/10/01			228941		1263041
L20541-14	04/19/01	DWMP-13	229640	229635	1263317	1263320
	04/19/01			229594		1263382
	04/19/01			229539		1263411
L20541-15	04/10/01	DWMP-14	229553	229553	1263228	1263226
	04/10/01			229561		1263224

L20541-16	04/10/01	DWMP-15	229444	229449	1263053	1263053
	04/10/01			229462		1263040
	04/10/01			229440		1263055
L20541-17	04/10/01	DWMP-16	229353	229347	1262966	1262981
	04/10/01			229356		1262964
L20541-18	04/19/01	DWMP-BREF1	218630	218625	1259459	1259451
	04/19/01			218629		1259461
	04/19/01			218631		1259458
L20541-19	04/19/01	DWMP-BREF1 (field replicate)	218630	218631	1259459	1259458
	04/19/01			218641		1259465

The field coordinates for each grab sample are expected to be within a 6-meter (18 feet) radius of the prescribed station coordinates. All grab samples were within these acceptance limits except for DWMP-12 (field replicate), which each had one of the individual grabs outside the acceptance limits, and DWMP-13, which had two of the three grabs outside the acceptance limits. Station DWMP-13 was near shore where the shoreline armoring made it difficult to collect grabs within the 6-meter radius.

#### **Sample Descriptions**

<b>Lab Sample #</b>	<b>Station Name</b>	<b>Sample Collection</b>	<b>Sediment Depth (from surface)</b>	<b>Sample Usage</b>
L20541-1	DWMP-01	Surface Grabs	2 cm	Chemistry
L20541-2	DWMP-02	Surface Grabs	2 cm	Chemistry
L20541-3	DWMP-03	Surface Grabs	2 cm	Chemistry
L20541-4	DWMP-04	Surface Grabs	2 cm	Chemistry
L20541-5	DWMP-05	Surface Grabs	2 cm	Chemistry
L20541-6	DWMP-06	Surface Grabs	2 cm	Chemistry
L20541-7	DWMP-07	Surface Grabs	2 cm	Chemistry
L20541-8	DWMP-08	Surface Grabs	2 cm	Chemistry
L20541-9	DWMP-09	Surface Grabs	2 cm	Chemistry
L20541-10	DWMP-10	Surface Grabs	2 cm	Chemistry
L20541-11	DWMP-11	Surface Grabs	2 cm	Chemistry
L20541-12	DWMP-12	Surface Grabs	2 cm	Chemistry
L20541-13	DWMP-12 (field replicate)	Surface Grabs	2 cm	Chemistry (field replicate)
L20541-14	DWMP-13	Surface Grabs	2 cm	Chemistry
L20541-15	DWMP-14	Surface Grabs	2 cm	Chemistry
L20541-16	DWMP-15	Surface Grabs	2 cm	Chemistry
L20541-17	DWMP-16	Surface Grabs	2 cm	Chemistry
L20541-18	DWMP-BREF1	Surface Grabs	2 cm	Chemistry
L20541-19	DWMP-BREF1 (field replicate)	Surface Grabs	2 cm	Chemistry (field replicate)

Sediment grab samples were collected from the King County research vessel *Liberty*, which is equipped with a differential global positioning system (DGPS). Field coordinates were recorded using DGPS for each deployment of the grab sampler as it contacted the sediment. For chemistry analyses, composite sediment samples were to be obtained using three separate grab deployments from each station. For ten of the samples, the composite was generated using only two separate deployments but collecting sample from separate Van Veen samplers. Coordinates for each grab sampler deployment are included in the previous table.

### **Sample Collection and Handling**

Seventeen marine sediment grab samples, including one field replicate, were collected on April 9, 10 and 19, 2001 from the Denny Way / Lake Union CSO Pre-construction Characterization Project site. One marine sediment grab sample and a field duplicate was collected April 19 from a proposed benthic taxonomy reference area near Seacrest Park (station DWMP-BREF1). Samples were collected from the top 2 cm for the chemistry aliquot of sediment using a tandem, stainless steel, modified, 0.1 m<sup>2</sup> Van Veen grab sampler deployed from the *Liberty* via hydrowire. Water depth at the 17 subtidal stations ranged between 4-29 meters (not corrected for tide). Between 5-17 cm of sediment was recovered in each grab, allowing collection of a sample aliquot from the top 2 cm using a 200 cm<sup>2</sup> "cookie cutter" and stainless steel spatula.

Each of the aliquots was placed into a separate stainless-steel bowl, covered with foil between grab deployments. After collecting aliquots from three grabs, the sediment sample was thoroughly homogenized and sample aliquots split out into pre-labeled containers. Sample containers were supplied by the King County Environmental Laboratory and were pre-cleaned according to analytical specifications.

Individual sets of sample compositing equipment were dedicated to each station, precluding the need for decontamination of the field gear. The Van Veen grab sampler was decontaminated between stations by scrubbing with a brush and ambient seawater, as necessary, followed by a thorough *in situ* rinsing.

Samples were stored in ice-filled coolers from the time of collection until delivery to the King County Environmental Laboratory. Samples were delivered under chain-of-custody and were maintained as such throughout the analytical process. Samples were stored frozen (-18°C) by the laboratory until analysis with the exception of samples for particle size distribution (PSD) analysis. PSD samples were stored refrigerated at approximately 4°C. A more complete description of sample handling and storage can be found in each analytical chemistry section of this narrative.

Copies of chain-of-custody forms and field sheets are included as an appendix to this QA1 review narrative.



## CONVENTIONAL ANALYSES

### **Completeness**

Conventional data are reported for all samples and parameters summarized in Table 1. These samples were analyzed in association with the complete set of QC samples outlined in Table 2.

### **Subcontracted Analyses**

Analysis for Particle Size Distribution (PSD) and Total Sulfides was subcontracted to Rosa Environmental and Analytical Resources, Inc. in Seattle, WA.

### **Methods**

Ammonia analysis was performed in accordance with Standard Method (SM) 4500-NH3-G following a KCl extraction (Plumb, 1981). PSD analysis was performed in accordance with ASTM Method D-422 and Puget Sound Protocols methodologies (page 9 - PSEP, 1986). TOC analysis was performed in accordance with SM5310-B and EPA 9060. Total solids and total volatile solids analyses were performed in accordance with SM2540-B and SM2540-G, respectively. Total sulfide analysis was performed in accordance with PSEP, 1986 and EPA Method 376.2.

### **Detection Limits, Units and Significant Figures**

For analyses performed at the KC Laboratory, data are reported in accordance with laboratory policy at the time the data were generated. Data are reported to three significant figures for results greater than the RDL and two significant figures for results equal to or less than the RDL. For results reported with less than two or three significant figures, significant zeroes are implied. This may not apply to subcontracted data.

### **Storage Conditions and Holding Times**

Sample storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The dates and holding time criteria for the actual storage conditions used for conventional analyses are listed in the table below.

Parameter	Lab ID#	Date Collected	Date Extracted	Date Analyzed	Sample Holding Time	Extract Holding Time
Ammonia Nitrogen	L20541-1→19	4/9-19/2001	5/15/2001	5/22/2001	6 months at -18°C	14 days at -18°C
Particle Size Distribution	L20541-1→9, 11→13, 15→17	4/9-10/2001	NA	4/16/2001	6 Months at 4°C	NA
	L20541-10,14,18, 19	4/19/2001	NA	4/25/2001		
Sulfides (Total)	L20541-1→9, 11→13, 15→17	4/9-10/2001	4/16/2001	4/16/2001	7 Days at 4°C	NA
	L20541-10,14,18, 19	4/19/2001	4/25/2001	4/25/2001		
Solids (Total and Volatile)	L20541-1→8	4/9-10/2001	NA	4/16/2001	6 months at -18°C	NA
	L20541-9→19	4/10-19/2001	NA	4/24/2001		
Total Organic Carbon	L20541-1→8,10,11	4/9-10/2001	4/16/2001	5/09/2001	6 months at -18°C	6 months at -18°C
	L20541-9, 12→19	4/10-19/2001	4/24/2001	5/16/2001		

Sample storage conditions and holding times were met for all samples in this data submission.

### **Method Blanks**

Method blanks were analyzed in connection with ammonia nitrogen/solids/total sulfides/total organic carbon analyses. All method blanks results were less than the MDL.

### **Standard Reference Materials**

An SRM (Buffalo River Sediment) was analyzed in connection with TOC analysis. The percent recovery for the SRM analysis was within the 80 to 120% QC limits. An SRM was not available for any other Conventional parameter, although lab control samples were successfully analyzed for ammonia nitrogen and total sulfides.

### **Matrix Spikes**

The matrix spike recovery for ammonia nitrogen was within the 75 to 125% QC limits for all samples. The matrix spike recovery for total sulfide was within the 65 to 135% QC limits, except for Total Sulfide parameter for samples L20541-10, -14, -18 and -19. The matrix spike of sample L20541-10 for total sulfide had a recovery of 52%, below the 65 – 135% control window. The probable cause was reported to be matrix interference. The total sulfide results for samples L20541-10, -14, -18, and -19 were qualified with a 'G' to show that the matrix spike associated with these samples had a recovery below the acceptance range. Since the lab control samples were acceptable, no corrective actions were taken based on the matrix spike results.

### **Laboratory Replicate Samples**

Laboratory triplicate samples were analyzed for all conventional parameters. The percent relative standard deviations (%RSD) for all triplicate analyses were less than or equal to the 20% QC limit, except for the second set of PSD analyses for Gravel.

All Gravel results for Samples L20541-10, -14, -18 and -19 are therefore qualified with the E flag. This category represents less than 1% of the total particle distribution of the sample analyzed in triplicate. Higher variability is expected for Gravel results that represent 10% or less of the total and therefore no corrective action was taken.

## METALS CHEMISTRY

### **Completeness**

Metal chemistry data are reported for all samples and parameters summarized in Table 1. These samples were analyzed for mercury and other metals in association with the complete set of QC samples outlined in Table 2.

All samples were re-analyzed for Silver on 5/15-16/2001 due to an unacceptable lab duplicate result for Silver in the original ICP analysis batch (5/9/2001).

### **Methods**

Mercury analysis was performed in accordance with EPA Method 7471. Analysis for other metals was performed in accordance with EPA method 3050/6010.

### **Target List**

The reported target list includes all metals specified in *Table 1*.

### **Detection Limits, Units and Significant Figures**

For analyses performed at the KC Laboratory, data are reported in accordance with laboratory policy at the time the data were generated. Data are reported to three significant figures for results greater than the RDL and two significant figures for results equal to or less than the RDL. For results reported with less than two or three significant figures, significant zeroes are implied.

### **Storage Conditions and Holding Times**

Sample storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The dates and holding time criteria for the actual storage conditions used for metals analyses are listed in the table below.

Parameter	Lab ID#	Date Collected	Date Digested/ Extracted	Date Analyzed	Sample Holding Time	Digestate/Extract Holding Time
Total Metals (except Silver)	L20541-1 to -19	4/9-19/2001	5/9/2001	5/14/2001	2 Years at -18°C	6 months
Total Silver	L20541-1 to -19	4/9-19/2001	5/15/2001	5/16/2001	2 Years at -18°C	6 months
Total Mercury	L20541-1 to -19	4/9-19/2001	4/26/2001	4/30/2001	28 days at -18°C	NA

Sample storage conditions and holding times were met for all samples in this data submission.

### **Method Blanks**

All metals method blanks results were less than the MDL.

### **Standard Reference Materials**

The SRM analyzed in association with samples included in this data submission is NRCC PACS 1. This SRM has certified values for all reported elements but Silver. An SRM recovery less than the QC limit of 80% has not been used to qualify metals data for ICP analysis because the digestion technique used is different from the technique used during analysis to determine the SRM values. Only SRM recoveries greater than 120% for metals (other than Mercury) will be used to qualify data.

The SRM recovery for Mercury was within the 80 to 120% limit. All ICP metals SRM recoveries were less than the QC limit of 120%, except for Cadmium, which had a recovery of 126%. Cadmium results for all samples have therefore been qualified with the L flag.

### **Matrix Spikes**

All matrix spike recoveries were within the 75 to 125% QC limits, except for Antimony, which had a recovery of 37%. Antimony results for all samples have therefore been qualified with the G flag.

### **Laboratory Replicate Samples**

The relative percent differences (RPDs) for laboratory duplicate results for the final data sets were less than the QC limit of 20%. The original ICP analysis performed on 5/14/2001 had an RPD for Silver that was greater than the 20% acceptance limit. All samples were therefore re-digested and re-analyzed on 5/15-16/2001, which had acceptable RPD results for Silver. Silver results are being reported for all samples from this re-analysis.

## ORGANIC CHEMISTRY

### Completeness

Organics data are reported for all samples and parameters summarized in Table 1. These samples were analyzed in association with the complete set of QC samples outlined in Table 2.

### Methods

BNA analysis was performed in accordance with EPA method 8270. VOA analysis was performed in accordance with EPA method 8260B. PCB and chlorinated pesticides analysis was performed in accordance with EPA methods 8082 and 8081A.

### Target List

The reported BNA target list includes all compounds specified in *Table 1 - Marine Sediment Quality Standards Chemical Criteria* and *Table 3 - Puget Sound Marine Sediment Cleanup Screening Levels Chemical Criteria* contained in Chapter 173-204 WAC with the exception of benzo(j)fluoranthene. The KC Laboratory has verified that analytical conditions are sufficient to calculate a total benzofluoranthene result using the reported *b* and *k* isomers.

Reported PCB data include Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260.

Chlordane results are reported using the combined concentrations of alpha and gamma Chlordane.

### Interferences

The conditions for the PCB/chlorinated pesticides and BNA analyses were adjusted to allow maximum sensitivity for these methods in order to meet the Marine Sediment Quality Standards Chemical Criteria for all appropriate parameters. Under these analysis conditions, the relatively high levels of PCBs and PAHs in nearly all the samples interfered with the detection and quantitation of certain parameters. For selected samples (L20541-1,2,3,7,8,9,12,15,16), detection limits for Chlordane were elevated due to interference from PCB components. Samples L20541-2→19 showed unacceptably low Continuing Calibration Verification checks for DDE, DDD, DDT and Methoxychlor. Continuing Calibration Verification for Toxaphene also failed for L20541-14→19. Results for these parameters and specific samples have been qualified with an E flag. It was decided that diluting the samples and re-analyzing to eliminate the interference would result in unacceptably high detection limits for these parameters therefore the original results are reported.

### Units and Significant Figures

For analyses performed at the KC Laboratory, data are reported in accordance with laboratory policy at the time the data were generated. Data are reported to three significant figures for results greater than the RDL and two significant figures for results equal to or less than the RDL. For results reported with less than two or three significant figures, significant zeroes are implied.

### Storage Conditions and Holding Times

Sample storage conditions and holding times have been evaluated using guidelines established during the Third Annual PSDDA Review Meeting. The dates and holding time criteria for the actual storage conditions used for organics analyses are listed in the following table.

Parameter	Lab ID#	Date Collected	Date Extracted	Date Analyzed	Sample Holding Time	Extract Holding Time
BNAs	L20541-1→19	4/9-19/2001	4/25/01	4/26/01-5/29/01	1 year at -18°C	40 days at 4°C
ChloroPest/PCBs	L20541-1→19	4/9-19/2001	4/24/01	5/7/01	1 year at -18°C	40 days at 4°C
VOAs	L20541-1→9	4/9-10/01	NA	4/13/01	14 Days at 4°C	Same as sample
	L20541-10	4/19/01	NA	4/20/01		
	L20541-11→19	4/10-19/01	NA	4/23/01		

Sample storage conditions and holding times were met for all samples in this data submission.

#### **Method Blanks**

##### **1. BNAs**

The method blank analyzed with BNAs for L20541-1→19 had a result above the MDL for Di-N-butyl Phthalate. Sample results for Di-N-Butyl Phthalate for all samples have all been qualified with the B flag. All Di-N-Butyl Phthalate results for these samples must be treated as estimated values.

All other method blank results (PCB/chlorinated Pesticides and VOAs ) were less than the MDL.

#### **Surrogate Recoveries**

##### **1. BNAs**

BNA sample data are qualified with a G flag when the average surrogate recovery for either or both the acid and base/neutral fractions are outside the 50 to 150% QC limits. The following table summarizes the average surrogate recoveries for those samples that are outside the QC limits and the flag applied to the appropriate parameters. All other average surrogate recoveries are acceptable.

Lab ID#	Average Acid Surrogate Recovery	Flag Applied to Acid Compounds
L20541-3	48	G
L20541-7	45.5	G
L20541-8	46	G
L20541-9	40.5	G
L20541-10	39	G
L20541-11	35.75	G
L20541-12	33.5	G
L20541-13	38.25	G
L20541-14	42.5	G
L20541-15	45	G
L20541-16	48.5	G

##### **2. PCBs and Chlorinated Pesticides**

Chlorinated Pesticides and PCBs are analyzed simultaneously. All parameters reported for a sample are qualified when both surrogate recoveries are outside QC limits. The measured recovery for at least one surrogate was within the 50 to 150% QC limits for all samples in this data submission.

##### **3. VOAs**

Volatile sample data are qualified when any one of the three surrogates fails sediment recovery criteria. For each set of analyses, all surrogates passed sediment recovery criteria for VOAs.

### **Standard Reference Materials**

#### **1. BNAs**

The sediment SRM analyzed in association with the reported BNA results is 1941a, certified by the National Institute of Standards and Technology (NIST). SRM 1941a has certified concentrations for a partial list of compounds for BNA analysis. Results for these compounds for all samples in this batch have been qualified based on the SRM recoveries outside the 80 to 120% QC limits. The recoveries and flags are summarized in the following table.

	<b>L20541-1→19</b>	
<b>Compound</b>	<b>% Recovery</b>	<b>Flag</b>
Naphthalene	21	G
Fluorene	86	
Hexachlorobenzene	62	G
Phenanthrene	50	G
Anthracene	78	G
Fluoranthene	84	
Pyrene	79	G
Benzo(a)anthracene	80	
Chrysene	132	L
Benzo(b)fluoranthene	130	L
Benzo(k)fluoranthene	136	L
Benzo(a)pyrene	90	
Indeno(1,2,3-c,d)pyrene	90	
Dibenzo(a,h)anthracene	138	L
Benzo(g,h,i)perylene	72	G

#### **2. PCBs and Chlorinated Pesticides**

The sediment SRM analyzed in association with the reported Chlorinated Pesticides results is 1941a, certified by the NIST. SRM 1941a contains certified levels of DDE and DDD. The sediment SRM analyzed in association with the reported PCB results is HS-2, certified by the National Research Council of Canada for Aroclor 1254. The recovery of the certified parameters must be within 80 to 120% or the appropriate parameters for all samples are flagged. The SRM results for this batch of samples are summarized below:

	<b>L20541-1→19</b>	
<b>Compound</b>	<b>% Recovery</b>	<b>Flag</b>
DDE	71	G
DDD	91	
Aroclor 1254	96	

#### **3. VOAs**

A sediment SRM is not available for VOAs.

### **Matrix Spikes**

#### **1. BNAs**

The matrix spike recoveries for each BNA compound must be within the 50 to 150% QC limits. If not, all sample results for the particular compound within the batch of samples must be flagged as follows. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. The following table

summarizes the matrix spike recoveries for specific compounds that are outside the QC limits and the appropriate flag. The matrix spike recoveries are acceptable for all other BNA parameters.

L20541-1→19		
Compound	% Recovery	Flag
Bis(2-Chloroethyl)Ether	28	G
2-Chlorophenol	41	G
1,3-Dichlorobenzene	9	X
1,4-Dichlorobenzene	12	G
1,2-Dichlorobenzene	13	G
Hexachloroethane	0	X
Nitrobenzene	44	G
1,2,4-Trichlorobenzene	40	G
Naphthalene	38	G
Hexachlorobutadiene	26	G
Dimethyl Phthalate	152	L
2,6-Dinitrotoluene	232	L
2,4-Dinitrotoluene	185	L
Phenanthrene	-145*	X
Anthracene	18*	G
Di-N-Butyl Phthalate	219	L
Fluoranthene	-393*	X
Pyrene	-271*	X
Benzyl Butyl Phthalate	249*	L
Benzo(a)anthracene	-164*	X
Chrysene	-152*	X
Bis(2-Ethylhexyl)Phthalate	16*	G
Di-N-Octyl Phthalate	278	L
Benzo(b)fluoranthene	-135*	X
Benzo(k)fluoranthene	21*	G
Benzo(a)pyrene	-118*	X
Indeno(1,2,3-cd)pyrene	-2*	X
Dibenzo(a,h)anthracene	49	G
Benzo(g,h,i)perylene	-13*	X
Aniline	0	X
Benzyl Alcohol	0	X
Coprostanol	0	X

\* Sample background levels for these parameters exceed the spike levels.

A significant number (50%) of the reported parameters were outside the 50 to 150% acceptance limits. As indicated in the table above, many of the parameters had measured background levels at or above the spike level. Due to the variability in the background levels, the true spike recovery is therefore difficult to accurately measure for these parameters. It is not possible to tell if the unacceptable recovery was due to interference and bias or only due to variability of the measured background response.

## 2. PCBs and Chlorinated Pesticides

Separate samples were used for preparing matrix spikes for Pesticides and PCBs since the combined parameters may cause interferences for selected pesticides. For the PCB-spiked sample, Aroclor 1260 and 1016 only are used as the spiking parameters. Chlordane and Toxaphene were not added as spiked parameters.



The matrix spike recoveries for Pesticide and PCB compounds must be within the 50 to 150% QC limits. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. The following table summarizes the matrix spike recoveries for specific parameters that were outside the QC limits and the appropriate flag. Spike recovery values for all other pesticide and PCB parameters were acceptable.

<b>L20541-1→19</b>		
<b>Compound</b>	<b>% Recovery</b>	<b>Flag</b>
Endrin Aldehyde	40	G
Aroclor 1260	43*	G

• The sample background level for this parameter exceeds the spike level.

For Aroclor 1260, all sample results are flagged since it is not possible to tell if the unacceptable recovery was due to an interference or bias or only due to variability of the measured background response. It is expected that matrix interference contributed to the unacceptable recovery for Endrin Aldehyde.

### 3. VOAs

The matrix spike recoveries for each VOA compound must be within the 50 to 150% QC limits. A G flag is applied if the recovery is between 10 and 50%, an X flag is applied if less than 10% recovery and an L flag is applied if greater than 150% recovery. All parameters showed recoveries within the QC limits for the VOA matrix spike.

### **Laboratory Replicate Samples**

Lab Replicate (duplicate) samples for Organics have a QC acceptance limit 100% for the Relative Percent Difference (RPD). All duplicate analyses showed acceptable RPD values for BNAs, Pesticide/PCBs and VOAs.

**TABLE 1  
SEDIMENT SAMPLE INVENTORY**

Sample	Station	Total Sulfides	PSD	Ammonia Nitrogen	Solids	TOC	Metals <sup>1</sup>	BNAs <sup>2</sup>	Pest/PCBs	VOCs <sup>3</sup>	Comments
L20541-1	DWMP-01	x	x	x	x	x	x	x	x	x	
L20541-2	DWMP-02	x	x	x	x	x	x	x	x	x	
L20541-3	DWMP-03	x	x	x	x	x	x	x	x	x	
L20541-4	DWMP-04	x	x	x	x	x	x	x	x	x	
L20541-5	DWMP-05	x	x	x	x	x	x	x	x	x	
L20541-6	DWMP-06	x	x	x	x	x	x	x	x	x	
L20541-7	DWMP-07	x	x	x	x	x	x	x	x	x	
L20541-8	DWMP-08	x	x	x	x	x	x	x	x	x	
L20541-9	DWMP-09	x	x	x	x	x	x	x	x	x	
L20541-10	DWMP-10	x	x	x	x	x	x	x	x	x	
L20541-11	DWMP-11	x	x	x	x	x	x	x	x	x	
L20541-12	DWMP-12	x	x	x	x	x	x	x	x	x	
L20541-13	DWMP-12	x	x	x	x	x	x	x	x	x	field replicate
L20541-14	DWMP-13	x	x	x	x	x	x	x	x	x	
L20541-15	DWMP-14	x	x	x	x	x	x	x	x	x	
L20541-16	DWMP-15	x	x	x	x	x	x	x	x	x	
L20541-17	DWMP-16	x	x	x	x	x	x	x	x	x	
L20541-18	DWMP-BREF1	x	x	x	x	x	x	x	x	x	
L20541-19	DWMP-BREF1	x	x	x	x	x	x	x	x	x	field replicate

1 Metals = Hg, Sb, As, Cd, Cr, Cu, Pb, Ni, Ag, Zn

2 BNAs = Selected BNA parameters including Chlorobenzenes

3 VOCs = Ethylbenzene, Tetrachloroethene, Trichloroethene, Total Xylenes

**TABLE 2**  
**QC SAMPLE FREQUENCY FOR SEDIMENT CHEMICAL AND PHYSICAL PARAMETERS**

<b>Parameter</b>	<b>Method Blank</b>	<b>Duplicate</b>	<b>Triplicate</b>	<b>Matrix Spike</b>	<b>SRM</b>	<b>Surrogates</b>
Ammonia Nitrogen	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	5% minimum, 1 per QC batch	No	No
PSD	No	See Triplicate	5% minimum, 1 per QC batch	No	No	No
Solids, Total and Volatile	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	No	No	No
TOC	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	No	1 per QC batch	No
Sulfides	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	5% minimum, 1 per QC batch	No	No
Metals	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	1 per QC batch	No
BNAs	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	1 per QC batch	Yes
PCBs/Chlorinated Pesticides	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	1 per QC batch	Yes
VOAs	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	No	Yes

**TABLE 3 - SUMMARY OF SEDIMENT DATA QUALIFIERS**

Condition to Qualify	King County Data Qualifier	Sedqual Data Qualifier	Organic QC Limits	Metal QC Limits	Conventional QC Limits	Comment
very low matrix spike recovery	X	X	< 10 %	< 10 %	< 10 %	
low matrix spike recovery	G	G	< 50%	< 75%	< 75% *	
high matrix spike recovery	L	L	> 150%	>125%	>125% *	
low standard reference material recovery	G	G	< 80%	NA	< 80%	
high standard reference material recovery	L	L	>120%	>120%	>120%	
high duplicate relative percent difference	E	E	>100 %	>20%	NA	for organics and metals
high triplicate relative standard deviation	E	E	NA	NA	> 20%	for conventionals
less than the reporting detection limit	<RDL**	T	NA	NA	NA	
less than the method detection limit	<MDL**	U	NA	NA	NA	
contamination reported in blank	B	B	>MDL	>MDL	>MDL	
biased data based on very low surrogate recoveries	X	X	all fraction surrogates <10%	NA	NA	average surrogate recovery for BNAs
biased data based on low surrogate recoveries	G	G	all fraction surrogates <50%	NA	NA	average surrogate recovery for BNAs
biased data based on high surrogate recoveries	L	L	all fraction surrogates >150%	NA	NA	average surrogate recovery for BNAs
rejected - unusable for all purposes	R	J2 or J3	NA	NA	NA	
a sample handling criteria has not been met	H	Q	NA	NA	NA	container, hold time, preservation
		-				

\* 65% to 135% for Total Sulfides.

\*\* For Sedqual files, <MDL uses a "U" flag, <RDL is not flagged.

## CONVENTIONAL ANALYSES QC DATA

## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

Jun 01 2001, 11:37 am

Work Group: WG55039 (NH3 Mercer St Tunnel) for Department: 3 - Conventionals

Created: 30-APR-01 Due: Operator: BP

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	11-APR-01	04-JUN-01
L20541-10	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	21-APR-01	04-JUN-01
L20541-11	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-12	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-13	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-14	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	21-APR-01	04-JUN-01
L20541-15	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-16	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-17	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-18	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	21-APR-01	04-JUN-01
L20541-19	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	21-APR-01	04-JUN-01
L20541-2	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	11-APR-01	04-JUN-01
L20541-3	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	11-APR-01	04-JUN-01
L20541-4	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	11-APR-01	04-JUN-01
L20541-5	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-6	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	11-APR-01	04-JUN-01
L20541-7	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	11-APR-01	04-JUN-01
L20541-8	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
L20541-9	423001	Mercer Street Tunnel	SED	S	NH3	SALTWTRSED	ANAL	U	12-APR-01	04-JUN-01
WG55039-1	MB			S	NH3	OTHR SOLID	ANAL	U	24-MAY-01	
WG55039-10	LCS			S	NH3	OTHR SOLID	ANAL	U	30-MAY-01	
WG55039-3	MB			S	NH3	OTHR SOLID	ANAL	U	24-MAY-01	
WG55039-4	MB			S	NH3	OTHR SOLID	ANAL	U	24-MAY-01	
WG55039-5	SB			S	NH3	OTHR SOLID	ANAL	U	24-MAY-01	
WG55039-7	LD		SED	S	NH3	SALTWTRSED	ANAL	U	24-MAY-01	
WG55039-8	LT		SED	S	NH3	SALTWTRSED	ANAL	U	24-MAY-01	
WG55039-9	MS		SED	S	NH3	SALTWTRSED	ANAL	U	24-MAY-01	

## Comments:

L20541-1 CHEM: comp-3 / TAX: rep-3  
 L20541-10 CHEM: comp-3 / TAX: rep-3  
 L20541-11 CHEM: comp-3 / TAX: rep-3  
 L20541-12 CHEM: comp-3 / TAX: rep-3  
 L20541-13 CHEM FREP  
 L20541-14 CHEM: comp-3 / TAX: rep-3  
 L20541-15 CHEM: comp-3 / TAX: rep-3  
 L20541-16 CHEM: comp-3 / TAX: rep-3  
 L20541-17 CHEM: comp-3 / TAX: rep-3  
 L20541-18 CHEM: comp-3 / TAX: rep-3  
 L20541-19 CHEM FREP  
 L20541-2 CHEM: comp-3 / TAX: rep-3  
 L20541-3 CHEM: comp-3 / TAX: rep-3  
 L20541-4 CHEM: comp-3 / TAX: rep-3  
 L20541-5 CHEM: comp-3 / TAX: rep-3  
 L20541-6 CHEM: comp-3 / TAX: rep-3  
 L20541-7 CHEM: comp-3 / TAX: rep-3  
 L20541-8 CHEM: comp-3 / TAX: rep-3  
 L20541-9 CHEM: comp-3 / TAX: rep-3  
 WG55039-1 MB1 KCL 010515  
 WG55039-10 LEVEL1  
 WG55039-3 MB2 KCL 010515  
 WG55039-4 MB3 KCL 010515  
 WG55039-5 WG55039-1  
 WG55039-7 L20541-1  
 WG55039-8 WG55039-7 L20541-1  
 WG55039-9 L20541-1

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/01/01 11:39  
Run ID: R66710 Workgroup: WG55039 (NH3 Mercer St Tunnel)

MB:WG55039-1 Matrix: OTHR SOLID Listtype: CVNH3 Method: SM4500-NH3-G (03-03-004-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.25	.5	mg/Kg	<MDL	

MB:WG55039-3 Matrix: OTHR SOLID Listtype: CVNH3 Method: SM4500-NH3-G (03-03-004-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.25	.5	mg/Kg	<MDL	

MB:WG55039-4 Matrix: OTHR SOLID Listtype: CVNH3 Method: SM4500-NH3-G (03-03-004-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Ammonia Nitrogen	.25	.5	mg/Kg	<MDL	

SB:WG55039-5 MB:WG55039-1 Matrix: OTHR SOLID Listtype: CVNH3 Method: SM4500-NH3-G (03-03-004-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.25	.5	mg/Kg	<MDL	1.25	1.41	113		80-120								

LD:WG55039-7 LT:WG55039-8 L20541-1 Matrix: SALTWTRSED Listtype: CVNH3 Method: SM4500-NH3-G (03-03-004-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Ammonia Nitrogen	.25	.5	mg/Kg	3.5		3.45					3.47				1		20

MS:WG55039-9 L20541-1 Matrix: SALTWTRSED Listtype: CVNH3 Method: SM4500-NH3-G (03-03-004-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits						RPD/RSD	Qual	Limits
Ammonia Nitrogen	.25	.5	mg/Kg	3.5	1.25	4.75	100		75-125								

LCS:WG55039-10 Matrix: OTHR SOLID Listtype: CVNH3 Method: SM4500-NH3-G (03-03-004-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LCS Value	% Rec.	Qual	Limits						RPD/RSD	Qual	Limits
Ammonia Nitrogen	.25	.5	mg/Kg		227	396	174	*	70-150								

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

May 21 2001, 02:32 pm

Work Group: WG55467 (MercerSt PSD (ROSA)) for Department: 3 - Conventionals

Created: 21-MAY-01 Due: Operator: BP

File	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
20541-1	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-11	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-12	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-13	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-15	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-16	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-17	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-2	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-3	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-4	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-5	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-6	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-7	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-8	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
20541-9	423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01

Comments:

20541-1	CHEM: comp-3 / TAX: rep-3
20541-11	CHEM: comp-3 / TAX: rep-3
20541-12	CHEM: comp-3 / TAX: rep-3
20541-13	CHEM: comp-3 / TAX: rep-3
20541-15	CHEM: comp-3 / TAX: rep-3
20541-16	CHEM: comp-3 / TAX: rep-3
20541-17	CHEM: comp-3 / TAX: rep-3
20541-2	CHEM: comp-3 / TAX: rep-3
20541-3	CHEM: comp-3 / TAX: rep-3
20541-4	CHEM: comp-3 / TAX: rep-3
20541-5	CHEM: comp-3 / TAX: rep-3
20541-6	CHEM: comp-3 / TAX: rep-3
20541-7	CHEM: comp-3 / TAX: rep-3
20541-8	CHEM: comp-3 / TAX: rep-3
20541-9	CHEM: comp-3 / TAX: rep-3



PROJECT: King County Environmental Lab

Project No.: 423001

REGL Triplicate Sample ID: 22794

Batch No.: 1011-020 -01

Client Triplicate Sample ID: L20541-1

Page: 1 of 1

## Relative Standard Deviation, By Component

Sample ID	Gravel	Sand	Silt	Clay
L20541-1 A	7.7	30.1	44.4	17.8
L20541-1 B	10.5	28.6	42.8	18.1
L20541-1 C	8.9	28.6	44.6	17.9
AVE	9.03	29.10	43.92	17.94
STDEV	1.43	0.86	1.01	0.16
%RSD	15.83	2.97	2.30	0.89

## Notes to the Testing:

1. See narrative for discussion of testing.

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

May 21 2001, 02:35 pm

Work Group: WG55468 (MercerSt PSD (ROSA)) for Department: 3 - Conventionals

Created: 21-MAY-01 Due: Operator: BP

#	File	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
120541-10		423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
120541-14		423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
120541-18		423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
120541-19		423001	Mercer Street Tunnel	SED	S	PSD	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01

Comments:

120541-10 CHEM: comp-3 / TAX: rep-3  
 120541-14 CHEM: comp-3 / TAX: rep-3  
 120541-18 CHEM: comp-3 / TAX: rep-3  
 120541-19 CHEM FREP

**QA SUMMARY**

PROJECT: King County Environmental Lab		Project No.: 423001
REGL Triplicate Sample ID:	22822	Batch No.: 1011-021 -01
Client Triplicate Sample ID:	N/A	Page: 1 of 1

Relative Standard Deviation, By Component

Sample ID	Gravel	Sand	Silt	Clay
A	0.9	78.8	16.6	3.7
B	0.3	77.3	18.6	3.8
C	0.2	78.4	17.4	4.0
AVE	0.44	78.21	17.51	3.84 ✓
STDEV	0.40	0.77	0.99	0.17
%RSD	89.2	0.99 ✓	5.67 ✓	4.43

Notes to the Testing:

1. See narrative for discussion of testing.
2. The shaded box represents <10% of the sample. The QC sample does not need to be re-analyzed, since it is assumed higher variability, is due to the low level of this category in the sample rather than a systematic failure. Please refer to subcontract agreement Section 3.3.5.2 for the full explanation.

## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

May 21 2001, 02:08 pm

Work Group: WG54881 (MercerSt TotSulfide(ROSA)) for Department: 3 - Conventionals


Created: 20-APR-01 Due: Operator: BP

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-11	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-12	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-13	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-15	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-16	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-17	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-2	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-3	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-4	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-5	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-6	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-7	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-8	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-9	423001	Mercer Street Tunnel	SED	S	TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01

## Comments:

L20541-1	CHEM: comp-3 / TAX: rep-3
L20541-11	CHEM: comp-3 / TAX: rep-3
L20541-12	CHEM: comp-3 / TAX: rep-3
L20541-13	CHEM: comp-3 / TAX: rep-3
L20541-15	CHEM: comp-3 / TAX: rep-3
L20541-16	CHEM: comp-3 / TAX: rep-3
L20541-17	CHEM: comp-3 / TAX: rep-3
L20541-2	CHEM: comp-3 / TAX: rep-3
L20541-3	CHEM: comp-3 / TAX: rep-3
L20541-4	CHEM: comp-3 / TAX: rep-3
L20541-5	CHEM: comp-3 / TAX: rep-3
L20541-6	CHEM: comp-3 / TAX: rep-3
L20541-7	CHEM: comp-3 / TAX: rep-3
L20541-8	CHEM: comp-3 / TAX: rep-3
L20541-9	CHEM: comp-3 / TAX: rep-3

## QA Report - Method Blank Analysis

QC Report No: CZ24-REGL, LLC  
Matrix: Sediment Project: 1011-020  
Date Received: NA  
Data Release Authorized:   
Reported: 05/23/01 Dr. M.A. Perkins

METHOD BLANK RESULTS  
CONVENTIONALS

## Analysis

Date & Batch	Constituent	Units	Result
Method Blank			
04/16/01	Sulfide	mg/L	< 0.05 U
04161#1			

## QA Report - Replicate Analysis

Matrix: Sediment

QC Report No: CZ24-REGL, LLC

Project: 1011-020

Date Received: 04/13/01


Data Release Authorized: *MB*

Reported: 05/23/01 Dr. M.A. Perkins

REPLICATE ANALYSIS RESULTS  
CONVENTIONALS

Constituent	Units	Sample Value	Replicate Value(s)	RPD/RSD
ARI ID: 01-5729, CZ24 C    Client Sample ID: L20541-3				
Sulfide	mg/kg	12.0	11.0 10.0	RSD: 9.1%
ARI ID: 01-5738, CZ24 L    Client Sample ID: L20541-13				
Sulfide	mg/kg	28.0	29.0 31.0	RSD: 5.2%

## QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

QC Report No: CZ24-REGL, LLC  
Matrix: Sediment Project: 1011-020  
Date Received: 04/13/01  
Data Release Authorized   
Reported: 05/23/01 Dr. M.A. Perkins

MATRIX SPIKE QA/QC REPORT  
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 01-5729, CZ24 C Client Sample ID: L20541-3					
Sulfide	mg/kg	12	160	180	82.3%
ARI ID: 01-5738, CZ24 L Client Sample ID: L20541-13					
Sulfide	mg/kg	28	138	147	74.7% Rounds to 75%

MS/MSD Recovery Limits: 75 - 125 %

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

May 21 2001, 02:35 pm

Work Group: WG55196 (MercerSt Sulfide (ROSA)) for Department: 3 - Conventionals

Created: 07-MAY-01 Due: Operator: BP

Sample	Project Number	Project Description	PKey	C Product	Matrix	Stat	UA	Workdate	Due date
L20541-10	423001	Mercer Street Tunnel	SED	S TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L20541-14	423001	Mercer Street Tunnel	SED	S TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L 541-18	423001	Mercer Street Tunnel	SED	S TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01
L 541-19	423001	Mercer Street Tunnel	SED	S TOTSULFIDE	SALTWTRSED	ANAL	U	04-JUN-01	04-JUN-01

Comments:

L 541-10 CHEM: comp-3 / TAX: rep-3  
 L 541-14 CHEM: comp-3 / TAX: rep-3  
 L20541-18 CHEM: comp-3 / TAX: rep-3  
 L20541-19 CHEM FREP




## QA Report - Method Blank Analysis

Matrix: Sediment

QC Report No: DA20-REGL, LLC

Project: 1011-21

Date Received: NA

Data Release Authorized: 

Reported: 05/04/01 Dr. M.A. Perkins

METHOD BLANK RESULTS  
CONVENTIONALS

## Analysis

Date & Batch	Constituent	Units	Result
Method Blank			
04/25/01	Sulfide	mg/L	< 0.05 U
04251#1			

## QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

Matrix: Sediment

QC Report No: DA20-REGL, LLC

Project: 1011-21

Date Received: 04/23/01

Data Release Authorized: *MB*

Reported: 05/04/01

MATRIX SPIKE QA/QC REPORT  
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 01-6277, DA20 A    Client Sample ID: L20541-10					
Sulfide	mg/kg	60	257	376	52.3%

MS/MSD Recovery Limits: 75 - 125 %

Soil MS/MSD QA Report Page 1 for DA20 received 04/23/01

000008A

## QA Report - Replicate Analysis

Matrix: Sediment  
Data Release Authorized: *MB*  
Reported: 05/04/01 Dr. M.A. Perkins

QC Report No: DA20-REGL, LLC  
Project: 1011-21  
Date Received: 04/23/01

REPLICATE ANALYSIS RESULTS  
CONVENTIONALS

Constituent	Units	Sample Value	Replicate Value(s)	RPD/RSD
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ARI ID: 01-6277, DA20 A Client Sample ID: L20541-10

Sulfide	mg/kg	60.0	58.0 59.0	RSD: 1.7%
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QA Report - Laboratory Control Samples

QC Report No: DA20-REGL, LLC

Project: 1011-21

Date Received: NA

Data Release Authorized: *MB*

Reported: 05/04/01 Dr. M.A. Perkins

LABORATORY CONTROL SAMPLES  
CONVENTIONALS

Constituent	Units	Measured Value	True Value	Recovery
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Laboratory Control Sample

Sulfide	mg/L	8.00	8.66	92.4%
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Date analyzed: 04/25/01 Batch ID: 04251#1

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Apr 17 2001, 09:12 am

Work Group: WG54770 (denny way tots #1) for Department: 3 - Conventionals

Created: 16-APR-01 Due: Operator: gmw

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-1	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-2	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-2	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-3	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-3	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-4	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-4	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-5	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-5	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-6	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-6	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-7	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-7	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	16-APR-01	25-MAY-01
L20541-8	423001	Mercer Street Tunnel	SED	S	TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-8	423001	Mercer Street Tunnel	SED	S	TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
WG54770-1	MB				S TOTS	OTHR SOLID	ANAL	U	16-APR-01	
WG54770-2	LD		SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	
WG54770-3	LT		SED	S	TOTS	SALTWTRSED	ANAL	U	16-APR-01	
WG54770-4	MB				S TVS	OTHR SOLID	ANAL	U	17-APR-01	
WG54770-5	LD		SED	S	TVS	SALTWTRSED	ANAL	U	17-APR-01	
WG54770-6	LT		SED	S	TVS	SALTWTRSED	ANAL	U	17-APR-01	

Comments:

L20541-1 CHEM: comp-3 / TAX: rep-3  
 L20541-2 CHEM: comp-3 / TAX: rep-3  
 L20541-3 CHEM: comp-3 / TAX: rep-3  
 L20541-4 CHEM: comp-3 / TAX: rep-3  
 L20541-5 CHEM: comp-3 / TAX: rep-3  
 L20541-6 CHEM: comp-3 / TAX: rep-3  
 L20541-7 CHEM: comp-3 / TAX: rep-3  
 L20541-8 CHEM: comp-3 / TAX: rep-3  
 WG54770-2 L20541-4  
 WG54770-3 WG54770-2 L20541-4  
 WG54770-5 L20541-4  
 WG54770-6 WG54770-5 L20541-4

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 04/17/01 03:51  
 Run ID: R65154 Workgroup: WG54770 (denny way tots #1)

MB:WG54770-1 Matrix: OTHR SOLID Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Solids	.005	.01	%	<MDL	

LD:WG54770-2 LT:WG54770-3 L20541-4 Matrix: SALTWTRSED Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Solids	.005	.01	%	50.4		50.8					51.1				1		20

MB:WG54770-4 Matrix: OTHR SOLID Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Volatile Solids	.005	.01	%	<MDL	

LD:WG54770-5 LT:WG54770-6 L20541-4 Matrix: SALTWTRSED Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Volatile Solids	.005	.01	%	2.67		2.59					2.6				2		20

## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

Apr 24 2001, 03:39 pm

Work Group: WG54933 (mercerc st./denny way TOTS/TVS #2) for Department: 3 - Conventionals

Created: 24-APR-01 Due: Operator: gmw

Sample	Project Number	Project Description	PKey	C Product	Matrix	Stat	UA	Workdate	Duedate
L20541-10	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-10	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-11	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-11	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-12	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-12	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-13	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-13	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-14	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-14	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-15	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-15	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-16	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-16	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-17	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-17	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-18	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-18	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-19	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-19	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	26-APR-01	04-JUN-01
L20541-9	423001	Mercer Street Tunnel	SED	S TOTS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
L20541-9	423001	Mercer Street Tunnel	SED	S TVS	SALTWTRSED	ANAL	U	17-APR-01	26-MAY-01
WG54933-1	MB			S TOTS	OTHR SOLID	ANAL	U	24-APR-01	
WG54933-1	MB			S TVS	OTHR SOLID	ANAL	U	24-APR-01	
WG54933-2	LD		SED	S TOTS	SALTWTRSED	ANAL	U	24-APR-01	
WG54933-2	LD		SED	S TVS	SALTWTRSED	ANAL	U	24-APR-01	
WG54933-3	LT		SED	S TOTS	SALTWTRSED	ANAL	U	24-APR-01	
WG54933-3	LT		SED	S TVS	SALTWTRSED	ANAL	U	24-APR-01	

## Comments:

L20541-10 CHEM: comp-3 / TAX: rep-3  
 L20541-11 CHEM: comp-3 / TAX: rep-3  
 L20541-12 CHEM: comp-3 / TAX: rep-3  
 L20541-13 CHEM FREP  
 L20541-14 CHEM: comp-3 / TAX: rep-3  
 L20541-15 CHEM: comp-3 / TAX: rep-3  
 L20541-16 CHEM: comp-3 / TAX: rep-3  
 L20541-17 CHEM: comp-3 / TAX: rep-3  
 L20541-18 CHEM: comp-3 / TAX: rep-3  
 L20541-19 CHEM FREP  
 L20541-9 CHEM: comp-3 / TAX: rep-3  
 WG54933-2 L20541-19  
 WG54933-3 WG54933-2 L20541-19

MB:WG54933-1 Matrix: OTHR SOLID Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Solids	.005	.01	%	<MDL	

MB:WG54933-1 Matrix: OTHR SOLID Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Volatile Solids	.005	.01	%	<MDL	

LD:WG54933-2 LT:WG54933-3 L20541-19 Matrix: SALTWTRSED Listtype: CVTOTS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Solids	.005	.01	%	69.5		69					68.8				1		20

LD:WG54933-2 LT:WG54933-3 L20541-19 Matrix: SALTWTRSED Listtype: CVTVS Method: SM2540-G (03-01-007-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Volatile Solids	.005	.01	%	1.77		1.78					1.71				2		20



## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

May 16 2001, 04:16 pm

Work Group: WG54923 (mercier st. tunnel/denny way TOC #2) for Department: 3 - Conventionals

Created: 24-APR-01 Due: Operator: gmw

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
20541-12	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	04-JUN-01
20541-13	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	04-JUN-01
20541-14	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	17-MAY-01	04-JUN-01
20541-15	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	04-JUN-01
20541-16	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	04-JUN-01
20541-17	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	04-JUN-01
20541-18	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	17-MAY-01	04-JUN-01
20541-19	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	17-MAY-01	04-JUN-01
20541-9	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	04-JUN-01
GS4923-1	MB				S TOC	OTHR SOLID	ANAL	U	16-MAY-01	
GS4923-2	SRM				S TOC	OTHR SOLID	ANAL	U	16-MAY-01	
GS4923-3	LD		SED	S	TOC	SALTWTRSED	ANAL	U	16-MAY-01	
GS4923-4	LT		SED	S	TOC	SALTWTRSED	ANAL	U	16-MAY-01	

## Comments:

20541-12 CHEM: comp-3 / TAX: rep-3  
 20541-13 CHEM FREP  
 20541-14 CHEM: comp-3 / TAX: rep-3  
 20541-15 CHEM: comp-3 / TAX: rep-3  
 20541-16 CHEM: comp-3 / TAX: rep-3  
 20541-17 CHEM: comp-3 / TAX: rep-3  
 20541-18 CHEM: comp-3 / TAX: rep-3  
 20541-19 CHEM FREP  
 20541-9 CHEM: comp-3 / TAX: rep-3  
 GS4923-2 HICONC  
 GS4923-3 L20541-9  
 GS4923-4 WG54923-3 L20541-9

## KING COUNTY METRO ENVIRONMENTAL LABORATORY

Lab QC Report - 05/21/01 07:36

Run ID: R66380 Workgroup: WG54923 (mercier st. tunnel/denny way TOC #2)

MB:WG54923-1 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Organic Carbon	500	1000	mg/Kg	<MDL	

SRM:WG54923-2 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	500	1000	mg/Kg	33480	37000	111	80-120					

LD:WG54923-3 LT:WG54923-4 L20541-9 Matrix: SALTWTRSED Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	500	1000	mg/Kg	12100	11700	11900									2		20

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

May 09 2001, 05:17 pm

Work Group: WG54769 (mercerc st. tunnel/denny way TOC #1) for Department: 3 - Conventionals

Created: 16-APR-01 Due: Operator: gmw

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	07-MAY-01	25-MAY-01
L20541-10	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	17-MAY-01	04-JUN-01
L20541-11	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	26-MAY-01
L20541-2	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	07-MAY-01	25-MAY-01
L20541-3	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	07-MAY-01	25-MAY-01
L20541-4	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	07-MAY-01	25-MAY-01
L20541-5	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	26-MAY-01
L20541-6	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	07-MAY-01	25-MAY-01
L20541-7	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	07-MAY-01	25-MAY-01
L20541-8	423001	Mercer Street Tunnel	SED	S	TOC	SALTWTRSED	ANAL	U	08-MAY-01	26-MAY-01
WG54769-1	MB			S	TOC	OTHR SOLID	ANAL	U	09-MAY-01	
WG54769-2	SRM			S	TOC	OTHR SOLID	ANAL	U	09-MAY-01	
WG54769-3	LD		SED	S	TOC	SALTWTRSED	ANAL	U	09-MAY-01	
WG54769-4	LT		SED	S	TOC	SALTWTRSED	ANAL	U	09-MAY-01	

Comments:

L20541-1 CHEM: comp-3 / TAX: rep-3  
 L20541-10 CHEM: comp-3 / TAX: rep-3  
 L20541-11 CHEM: comp-3 / TAX: rep-3  
 L20541-2 CHEM: comp-3 / TAX: rep-3  
 L20541-3 CHEM: comp-3 / TAX: rep-3  
 L20541-4 CHEM: comp-3 / TAX: rep-3  
 L20541-5 CHEM: comp-3 / TAX: rep-3  
 L20541-6 CHEM: comp-3 / TAX: rep-3  
 L20541-7 CHEM: comp-3 / TAX: rep-3  
 L20541-8 CHEM: comp-3 / TAX: rep-3  
 WG54769-2 ~~LEVEL 1~~ HICONE  
 WG54769-3 L20541-3  
 WG54769-4 WG54769-3 L20541-3

## KING COUNTY METRO ENVIRONMENTAL LABORATORY

Lab QC Report - 05/21/01 07:35

Run ID: R66384 Workgroup: WG54769 (mercier st. tunnel/denny way TOC #1)

MB:WG54769-1 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Total Organic Carbon	500	1000	mg/Kg	<MDL	

SRM:WG54769-2 Matrix: OTHR SOLID Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	500	1000	mg/Kg	33480	37200	111			80-120			

LD:WG54769-3 LT:WG54769-4 L20541-3 Matrix: SALTWTRSED Listtype: CVTOC Method: EPA9060-PSEP96 (03-04-002-001) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	Truevalue	LT Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Total Organic Carbon	500	1000	mg/Kg	10700		10500					10200				2		20

**METAL CHEMISTRY QC DATA**

May 17 2001, 08:31 am

Work Group: WG55254 (5/9/01 Mercer Tunnel Seds) for Department: 6 - Metals, Trace

Created: 09-MAY-01      Due:      Operator: Kevin C.

[illegible]



## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

May 17 2001, 08:31 am

Work Group: WG55254 (5/9/01 Mercer Tunnel Seds) for Department: 6 - Metals, Trace

Created: 09-MAY-01 Due: Operator: Kevin C.

Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
20541-6	423001 Mercer Street Tunnel	SED	S	PB-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-6	423001 Mercer Street Tunnel	SED	S	NI-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-6	423001 Mercer Street Tunnel	SED	S	CU-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-6	423001 Mercer Street Tunnel	SED	S	CR-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-6	423001 Mercer Street Tunnel	SED	S	CD-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-6	423001 Mercer Street Tunnel	SED	S	AS-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	AS-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	CU-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	NI-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	SB-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	ZN-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	PB-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	CD-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-7	423001 Mercer Street Tunnel	SED	S	CR-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	CD-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	AS-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	NI-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	PB-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	SB-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	ZN-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	CU-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-8	423001 Mercer Street Tunnel	SED	S	CR-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	NI-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	CU-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	CR-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	CD-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	ZN-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	PB-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	SB-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-9	423001 Mercer Street Tunnel	SED	S	AS-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-1	SB			S ROUTINE ICP	BLANK WTR	WKGP	U	09-MAY-01	
20541-2	MB			S ROUTINE ICP	BLANK WTR	WKGP	U	09-MAY-01	
20541-3	SRM	SED		S ROUTINE ICP	SALTWTRSED	WKGP	U	09-MAY-01	
20541-4	SRM			S ROUTINE ICP	SOIL	WKGP	U	09-MAY-01	
20541-5	LD	SED		S ROUTINE ICP	SALTWTRSED	WKGP	U	09-MAY-01	
20541-6	MS	SED		S ROUTINE ICP	SALTWTRSED	WKGP	U	09-MAY-01	
20541-7	SDIL	SED		S ROUTINE ICP	SALTWTRSED	WKGP	U	09-MAY-01	

## Comments:

20541-11 CHEM: comp-3 / TAX: rep-3  
 20541-12 CHEM: comp-3 / TAX: rep-3  
 20541-13 CHEM FREP  
 20541-14 CHEM: comp-3 / TAX: rep-3  
 20541-15 CHEM: comp-3 / TAX: rep-3  
 20541-16 CHEM: comp-3 / TAX: rep-3  
 20541-17 CHEM: comp-3 / TAX: rep-3  
 20541-18 CHEM: comp-3 / TAX: rep-3  
 20541-19 CHEM FREP  
 20541-2 CHEM: comp-3 / TAX: rep-3  
 20541-3 CHEM: comp-3 / TAX: rep-3  
 20541-4 CHEM: comp-3 / TAX: rep-3  
 20541-5 CHEM: comp-3 / TAX: rep-3  
 20541-6 CHEM: comp-3 / TAX: rep-3  
 20541-7 CHEM: comp-3 / TAX: rep-3  
 20541-8 CHEM: comp-3 / TAX: rep-3  
 20541-9 CHEM: comp-3 / TAX: rep-3  
 20541-1 WG55254-2 ICP200  
 20541-2 MB



METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

May 17 2001, 08:31 am

Work Group: WG55254 (5/9/01 Mercer Tunnel Seds) for Department: 6 - Metals, Trace

Created: 09-MAY-01 Due: Operator: Kevin C.

Sample	Project Number	Project Description	PKY C Product	Matrix	Stat UA	Workdate	Due date
WG55254-3		PACS1					
WG55254-4		ERASOIL					
WG55254-5		L20541-3 RPD-SOL					
WG55254-6		L20541-3 ICP200					
WG55254-7		L20541-3 SDIL 5X					

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 05/22/01 02:01  
Run ID: R66485 Workgroup: WG55254 (5/9/01 Mercer Tunnel Seds)

SB:WG55254-1 MB:WG55254-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Arsenic, Total, ICP	.05	.25	mg/L	<MDL	4	3.82	96		85-115								
Cadmium, Total, ICP	.003	.015	mg/L	<MDL	1.2	1.13	94		85-115								
Chromium, Total, ICP	.005	.025	mg/L	<MDL	1.2	1.16	97		85-115								
Copper, Total, ICP	.004	.02	mg/L	<MDL	1.2	1.16	97		85-115								
Nickel, Total, ICP	.02	.1	mg/L	<MDL	1.2	1.14	95		85-115								
Lead, Total, ICP	.03	.15	mg/L	<MDL	4	3.78	95		85-115								
Antimony, Total, ICP	.03	.15	mg/L	<MDL	4	3.75	94		85-115								
Zinc, Total, ICP	.005	.025	mg/L	<MDL	5	4.71	94		85-115								

MB:WG55254-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Arsenic, Total, ICP	.05	.25	mg/L	<MDL	
Cadmium, Total, ICP	.003	.015	mg/L	<MDL	
Chromium, Total, ICP	.005	.025	mg/L	<MDL	
Copper, Total, ICP	.004	.02	mg/L	<MDL	
Nickel, Total, ICP	.02	.1	mg/L	<MDL	
Lead, Total, ICP	.03	.15	mg/L	<MDL	
Antimony, Total, ICP	.03	.15	mg/L	<MDL	
Zinc, Total, ICP	.005	.025	mg/L	<MDL	

SRM:WG55254-3 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Arsenic, Total, ICP	10	52.3	mg/Kg	211	174	83			120			
Cadmium, Total, ICP	.63	3.14	mg/Kg	2.38	3	126		L	120			
Chromium, Total, ICP	1	5.23	mg/Kg	113	54.8	48			120			
Copper, Total, ICP	.84	4.19	mg/Kg	452	420	93			120			
Nickel, Total, ICP	4.2	20.9	mg/Kg	44.1	33	75			120			
Lead, Total, ICP	6.3	31.4	mg/Kg	404	377	93			120			
Antimony, Total, ICP	6.3	31.4	mg/Kg	171	66.9	39			120			
Zinc, Total, ICP	1	5.23	mg/Kg	824	742	90			120			

Lab Control Sample

SRM:WG55254-4 Matrix: SOIL Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

CASE 8/22/01

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Arsenic, Total, ICP	11	55.5	mg/Kg	53.2	59.6	112			120			
Cadmium, Total, ICP	.67	3.33	mg/Kg	151	161	106			120			
Chromium, Total, ICP	1.1	5.55	mg/Kg	99.4	103	104			120			
Copper, Total, ICP	.89	4.44	mg/Kg	59.2	64.4	109			120			
Nickel, Total, ICP	4.4	22.2	mg/Kg	63.3	67.4	106			120			
Lead, Total, ICP	6.7	33.3	mg/Kg	97.8	112	114			120			
Antimony, Total, ICP	6.7	33.3	mg/Kg	49.8	54.5	109			120			
Zinc, Total, ICP	1.1	5.55	mg/Kg	123	130	106			120			

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 05/22/01 02:01  
 Run ID: R66485 Workgroup: WG55254 (5/9/01 Mercer Tunnel Seds)

LD:WG55254-5 L20541-3 Matrix: SALTWRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec. Qual	Limits	RPD/RSD	Qual	Limits
Arsenic, Total, ICP	2.5	12.6	mg/Kg	4.3		4.8					20
Cadmium, Total, ICP	.15	.756	mg/Kg	.46		.32					20
Chromium, Total, ICP	.25	1.26	mg/Kg	18.5		19.5			5		20
Copper, Total, ICP	.2	1.01	mg/Kg	27.6		23.8			15		20
Nickel, Total, ICP	1	5.04	mg/Kg	17.2		17.8			3		20
Lead, Total, ICP	1.5	7.56	mg/Kg	32.2		32.7			2		20
Antimony, Total, ICP	1.5	7.56	mg/Kg	<MDL		<MDL					20
Zinc, Total, ICP	.25	1.26	mg/Kg	47.7		45.8			4		20

MS:WG55254-6 L20541-3 Matrix: SALTWRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec. Qual	Limits	RPD/RSD	Qual	Limits
Arsenic, Total, ICP	2.5	12.5	mg/Kg	4.3	4	195	95	75-125			
Cadmium, Total, ICP	.15	.752	mg/Kg	.46	1.2	56.3	93	75-125			
Chromium, Total, ICP	.25	1.25	mg/Kg	18.5	1.2	78.1	99	75-125			
Copper, Total, ICP	.2	1	mg/Kg	27.6	1.2	82.1	91	75-125			
Nickel, Total, ICP	1	5.02	mg/Kg	17.2	1.2	74	94	75-125			
Lead, Total, ICP	1.5	7.52	mg/Kg	32.2	4	214	91	75-125			
Antimony, Total, ICP	1.5	7.52	mg/Kg	<MDL	4	75.2	37	75-125		G	
Zinc, Total, ICP	.25	1.25	mg/Kg	47.7	5	278	92	75-125			

SDIL:WG55254-7 Matrix: SALTWRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SDIL Value	% Rec. Qual	Limits	RPD/RSD	Qual	Limits
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Silver Only

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

May 17 2001, 08:31 am

Work Group: WG55416 (5/17/01 Mercer St. Seds) for Department: 6 - Metals, Trace

Created: 17-MAY-01 Due: Operator: Kevin C.

Project Number	Project Description	PKey C	Product	Matrix	Stat	UA	Workdate	Due date
20541-1	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-10	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-11	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-12	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-13	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-14	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-15	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-16	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-17	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-18	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-19	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-2	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-3	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-4	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-5	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20541-6	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-7	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-8	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
20 1-9	423001 Mercer Street Tunnel	SED	S AG-ICP	SALTWTRSED	WKGP	U	04-JUN-01	04-JUN-01
205416-1	SB		S ROUTINE ICP	BLANK WTR	WKGP	U	17-MAY-01	
205416-2	MB		S ROUTINE ICP	BLANK WTR	WKGP	U	17-MAY-01	
20 16-3	SRM	SED	S ROUTINE ICP	SALTWTRSED	WKGP	U	17-MAY-01	
20 16-4	SRM		S ROUTINE ICP	SOIL	WKGP	U	17-MAY-01	
205416-5	LD	SED	S ROUTINE ICP	SALTWTRSED	WKGP	U	17-MAY-01	
205416-6	MS	SED	S ROUTINE ICP	SALTWTRSED	WKGP	U	17-MAY-01	
205416-7	SDIL	SED	S ROUTINE ICP	SALTWTRSED	WKGP	U	17-MAY-01	

Comments:

20541-1 CHEM: comp-3 / TAX: rep-3  
20 1-10 CHEM: comp-3 / TAX: rep-3  
20 1-11 CHEM: comp-3 / TAX: rep-3  
20 1-12 CHEM: comp-3 / TAX: rep-3  
20541-13 CHEM FREP  
20541-14 CHEM: comp-3 / TAX: rep-3  
20 1-15 CHEM: comp-3 / TAX: rep-3  
20 1-16 CHEM: comp-3 / TAX: rep-3  
20 1-17 CHEM: comp-3 / TAX: rep-3  
20541-18 CHEM: comp-3 / TAX: rep-3  
20541-19 CHEM FREP  
20 1-2 CHEM: comp-3 / TAX: rep-3  
20 1-3 CHEM: comp-3 / TAX: rep-3  
20 1-4 CHEM: comp-3 / TAX: rep-3  
20541-5 CHEM: comp-3 / TAX: rep-3  
20541-6 CHEM: comp-3 / TAX: rep-3  
20 1-7 CHEM: comp-3 / TAX: rep-3  
20 1-8 CHEM: comp-3 / TAX: rep-3  
20541-9 CHEM: comp-3 / TAX: rep-3  
205416-1 WG55416-2 ICP200  
20 16-2 MB  
20 16-3 PACS1  
20 16-4 ERASOIL  
205416-5 L20541-3 RPD-SOL  
205416-6 L20541-3 ICP200  
20 16-7 L20541-3 SDIL 5X

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 05/21/01 05:10  
Run ID: R66487 Workgroup: WG55416 (5/17/01 Mercer St. Seds)

SB:WG55416-1 MB:WG55416-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.004	.02	mg/L	<MDL	1.2	1.13	94		85-115								

MB:WG55416-2 Matrix: BLANK WTR Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Silver, Total, ICP	.004	.02	mg/L	<MDL	

SRM:WG55416-3 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits

*Lab Control Sample*

SRM:WG55416-4 Matrix: SOIL Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.91	4.53	mg/Kg	107	101	95			120			

LD:WG55416-5 L20541-3 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.19	.969	mg/Kg	1.03		1.05				3		20

MS:WG55416-6 L20541-3 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Silver, Total, ICP	.2	.976	mg/Kg	1.03	1.2	54.5	91		75-125			

SDIL:WG55416-7 Matrix: SALTWTRSED Listtype: MTICP-SED Method: EPA3050A/6010B (06-02-004-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SDIL Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits

## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

May 01 2001, 03:29 pm

Work Group: WG54971 (4/30/01 Mercer Street Tunnel) for Department: 6 - Metals, Trace

Created: 30-APR-01 Due: Operator: E. Salnick

Sample	Project Number	Project Description	PKY	C	Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	07-MAY-01	25-MAY-01
L20541-10	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	17-MAY-01	04-JUN-01
L20541-11	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-12	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-13	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-14	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	17-MAY-01	04-JUN-01
L20541-15	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-16	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-17	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-18	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	17-MAY-01	04-JUN-01
L20541-19	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	17-MAY-01	04-JUN-01
L20541-2	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	07-MAY-01	25-MAY-01
L20541-3	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	07-MAY-01	25-MAY-01
L20541-4	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	07-MAY-01	25-MAY-01
L20541-5	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-6	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	07-MAY-01	25-MAY-01
L20541-7	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	07-MAY-01	25-MAY-01
L20541-8	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
L20541-9	423001	Mercer Street Tunnel	SED	S	HG-CVAA	SALTWTRSED	WKGP	U	08-MAY-01	26-MAY-01
WG54971-1	MB			S	HG-CVAA	BLANK WTR	WKGP	U	30-APR-01	
WG54971-2	SB			S	HG-CVAA	BLANK WTR	WKGP	U	30-APR-01	
WG54971-3	SRM		SED	S	HG-CVAA	SALTWTRSED	WKGP	U	30-APR-01	
WG54971-4	LD		SED	S	HG-CVAA	SALTWTRSED	WKGP	U	30-APR-01	
WG54971-5	MS		SED	S	HG-CVAA	SALTWTRSED	WKGP	U	30-APR-01	

## Comments:

L20541-1 CHEM: comp-3 / TAX: rep-3  
 L20541-10 CHEM: comp-3 / TAX: rep-3  
 L20541-11 CHEM: comp-3 / TAX: rep-3  
 L20541-12 CHEM: comp-3 / TAX: rep-3  
 L20541-13 CHEM: comp-3 / TAX: rep-3  
 L20541-14 CHEM: comp-3 / TAX: rep-3  
 L20541-15 CHEM: comp-3 / TAX: rep-3  
 L20541-16 CHEM: comp-3 / TAX: rep-3  
 L20541-17 CHEM: comp-3 / TAX: rep-3  
 L20541-18 CHEM: comp-3 / TAX: rep-3  
 L20541-19 CHEM: comp-3 / TAX: rep-3  
 L20541-2 CHEM: comp-3 / TAX: rep-3  
 L20541-3 CHEM: comp-3 / TAX: rep-3  
 L20541-4 CHEM: comp-3 / TAX: rep-3  
 L20541-5 CHEM: comp-3 / TAX: rep-3  
 L20541-6 CHEM: comp-3 / TAX: rep-3  
 L20541-7 CHEM: comp-3 / TAX: rep-3  
 L20541-8 CHEM: comp-3 / TAX: rep-3  
 L20541-9 CHEM: comp-3 / TAX: rep-3  
 WG54971-1 METHOD BLANK  
 WG54971-2 WG54971-1 HG-SOL  
 WG54971-3 PACS1  
 WG54971-4 L20541-5 RPD-SOL  
 WG54971-5 L20541-5 HG-SOL

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 05/01/01 03:48  
 Run ID: R65794 Workgroup: WG54971 (4/30/01 Mercer Street Tunnel)

MB:WG54971-1 Matrix: BLANK WTR Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Mercury, Total, CVAA	.0002	.002	mg/L	<MDL	

SB:WG54971-2 MB:WG54971-1 Matrix: BLANK WTR Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.0002	.002	mg/L	<MDL	0.005	.00506	101		85-115								

SRM:WG54971-3 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.094	.939	mg/Kg	4.57	4.3	94			120			

LD:WG54971-4 L20541-5 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.02	.2	mg/Kg	.046		.12						20

MS:WG54971-5 L20541-5 Matrix: SALTWTRSED Listtype: MTHG-SED Method: EPA 245.5 (06-01-004-003) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Mercury, Total, CVAA	.02	.2	mg/Kg	.046	.005	.484	88		75-125			

ORGANIC CHEMISTRY QC DATA



QC  
Bqter  
ID #

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Apr 26 2001, 02:48 pm

Work Group: W654742 (VSM 296) for Department: 7 - Organics, Trace

Created: 13-APR-01 Due: Operator: gm

Sample	Project Number	Project Description	PKey	C	Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	23-APR-01	25-MAY-01
L20541-2	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	23-APR-01	25-MAY-01
L20541-3	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	23-APR-01	25-MAY-01
L20541-4	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	23-APR-01	25-MAY-01
L20541-5	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-6	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	23-APR-01	25-MAY-01
L20541-7	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	23-APR-01	25-MAY-01
L20541-8	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-9	423001	Mercer Street Tunnel	SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
W654742-1	MB		SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	13-APR-01	
W654742-2	SB		SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	13-APR-01	
W654742-5	LD		SED	S	VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	18-APR-01	

Comments:

L20541-1 CHEM: comp-3 / TAX: rep-3  
L20541-2 CHEM: comp-3 / TAX: rep-3  
L20541-3 CHEM: comp-3 / TAX: rep-3  
L20541-4 CHEM: comp-3 / TAX: rep-3  
L20541-5 CHEM: comp-3 / TAX: rep-3  
L20541-6 CHEM: comp-3 / TAX: rep-3  
L20541-7 CHEM: comp-3 / TAX: rep-3  
L20541-8 CHEM: comp-3 / TAX: rep-3  
L20541-9 CHEM: comp-3 / TAX: rep-3  
W654742-1 MB010413  
W654742-2 W654742-1  
W654742-5 L20541-2

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 04/27/01 11:43  
 Run ID: R65303 Workgroup: WG54742 (VSM 296)

MB:WG54742-1 Matrix: SALTWRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	
Tetrachloroethylene	5	10	ug/Kg	<MDL	
Ethylbenzene	5	10	ug/Kg	<MDL	
Total Xylenes	5	10	ug/Kg	<MDL	

SB:WG54742-2 MB:WG54742-1 Matrix: SALTWRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	250	249	100		50-150								100
Tetrachloroethylene	5	10	ug/Kg	<MDL	250	269	108		50-150								100
Ethylbenzene	5	10	ug/Kg	<MDL	250	263	105		50-150								100
Total Xylenes	5	10	ug/Kg	<MDL	500	518	104		50-150								100

LD:WG54742-5 L20541-2 Matrix: SALTWRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL		<MDL						100
Tetrachloroethylene	5	10	ug/Kg	<MDL		<MDL						100
Ethylbenzene	5	10	ug/Kg	<MDL		<MDL						100
Total Xylenes	5	10	ug/Kg	<MDL		<MDL						100

MS:WG54882-3 MSD:WG54882-4 L20541-10 Matrix: SALTWRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	250	215	86		50-150	250	209	84		50-150	2		100
Tetrachloroethylene	5	10	ug/Kg	<MDL	250	209	84		50-150	250	210	84		50-150	0		100
Ethylbenzene	5	10	ug/Kg	<MDL	250	214	86		50-150	250	212	85		50-150	1		100
Total Xylenes	5	10	ug/Kg	<MDL	500	427	85		50-150	500	419	84		50-150	1		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 04/27/01 11:43  
 Run ID: R65303 Workgroup: WG54742 (VSM 296)

Sample #	d4-1,2-Dichloroethane 70-121	d8-Toluene 84-138	4-Bromofluorobenzene 59-113
L20541-1	103	100	100
L20541-2	102	100	99
L20541-3	102	99	100
L20541-4	101	98	97
L20541-5	102	99	99
L20541-6	101	98	99
L20541-7	103	98	98
L20541-8	102	99	98
L20541-9	102	98	98
WG54742-1	102	102	100
WG54742-2	101	99	100
WG54742-5	101	99	99

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Apr 23 2001, 09:29 am

Work Group: WG54882 (VSM296) for Department: 7 - Organics, Trace

Created: 20-APR-01 Due: Operator: gm

Sample	Project Number	Project Description	PKey	C Product	Matrix	Stat	UA	Workdate	Due date
L20541-10	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	03-MAY-01	04-JUN-01
WG54882-1	MB		SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	20-APR-01	
WG54882-2	SB		SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	20-APR-01	
WG54882-3	MS		SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	20-APR-01	
WG54882-4	MSD		SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	20-APR-01	

Comments:

L20541-10 CHEM: comp-3 / TAX: rep-3  
 WG54882-1 MB010420  
 WG54882-2 WG54882-1  
 WG54882-3 L20541-10  
 WG54882-4 WG54882-3 L20541-10

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 04/24/01 08:40  
 Run ID: R65373 Workgroup: WG54882 (VSM296)

MB:WG54882-1 Matrix: SALTWRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	
Tetrachloroethylene	5	10	ug/Kg	<MDL	
Ethylbenzene	5	10	ug/Kg	<MDL	
Total Xylenes	5	10	ug/Kg	<MDL	

SB:WG54882-2 MB:WG54882-1 Matrix: SALTWRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	250	224	90		50-150					50-150			100
Tetrachloroethylene	5	10	ug/Kg	<MDL	250	233	93		50-150					50-150			100
Ethylbenzene	5	10	ug/Kg	<MDL	250	238	95		50-150					50-150			100
Total Xylenes	5	10	ug/Kg	<MDL	500	482	96		50-150					50-150			100

MS:WG54882-3 MSD:WG54882-4 L20541-10 Matrix: SALTWRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	250	215	86		50-150	250	209	84		50-150	2		100
Tetrachloroethylene	5	10	ug/Kg	<MDL	250	209	84		50-150	250	210	84		50-150	0		100
Ethylbenzene	5	10	ug/Kg	<MDL	250	214	86		50-150	250	212	85		50-150	1		100
Total Xylenes	5	10	ug/Kg	<MDL	500	427	85		50-150	500	419	84		50-150	1		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 04/24/01 08:40  
Run ID: R65373 Workgroup: WG54882 (VSM296)

Sample #	d4-1,2-Dichloroethane 70-121	d8-Toluene 84-138	4-Bromofluorobenzene 59-113
L20541-10	102	97	97
WG54882-1	99	99	100
WG54882-2	100	99	102
WG54882-3	97	99	101
WG54882-4	95	99	101

## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

Apr 25 2001, 02:41 pm

Work Group: WG54896 (VSM296) for Department: 7 - Organics, Trace

Created: 23-APR-01 Due: Operator: gm

Sample	Project Number	Project Description	PKey	C Product	Matrix	Stat	UA	Workdate	Due date
L20541-11	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-12	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-13	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-14	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	03-MAY-01	04-JUN-01
L20541-15	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-16	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-17	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	24-APR-01	26-MAY-01
L20541-18	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	03-MAY-01	04-JUN-01
L20541-19	423001	Mercer Street Tunnel	SED	S VOA-GC/MS-LOWSED	SALTWTRSED	WKGP	U	03-MAY-01	04-JUN-01
WG54896-1	MB			S VOA-GC/MS-LOWSED	OTHR SOLID	WKGP	U	23-APR-01	
WG54896-2	SB			S VOA-GC/MS-LOWSED	OTHR SOLID	WKGP	U	23-APR-01	

## Comments:

L20541-11 CHEM: comp-3 / TAX: rep-3  
L20541-12 CHEM: comp-3 / TAX: rep-3  
L20541-13 CHEM FREP  
L20541-14 CHEM: comp-3 / TAX: rep-3  
L20541-15 CHEM: comp-3 / TAX: rep-3  
L20541-16 CHEM: comp-3 / TAX: rep-3  
L20541-17 CHEM: comp-3 / TAX: rep-3  
L20541-18 CHEM: comp-3 / TAX: rep-3  
L20541-19 CHEM FREP  
WG54896-1 MB010423  
WG54896-2 WG54896-1

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 04/25/01 02:32  
 Run ID: R65534 Workgroup: WG54896 (VSM296)

MB:WG54896-1 Matrix: OTHR SOLID Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	
Tetrachloroethylene	5	10	ug/Kg	<MDL	
Ethylbenzene	5	10	ug/Kg	<MDL	
Total Xylenes	5	10	ug/Kg	<MDL	

SB:WG54896-2 MB:WG54896-1 Matrix: OTHR SOLID Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	250	256	102		50-150								100
Tetrachloroethylene	5	10	ug/Kg	<MDL	250	277	111		50-150								100
Ethylbenzene	5	10	ug/Kg	<MDL	250	274	110		50-150								100
Total Xylenes	5	10	ug/Kg	<MDL	500	547	109		50-150								100

MS:WG54882-3 MSD:WG54882-4 L20541-10 Matrix: SALTWTRSED Listtype: ORVOA-LOWSED Method: EPA 8260B (7-3-02-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
1,1,2-Trichloroethylene	5	10	ug/Kg	<MDL	250	215	86		50-150	250	209	84		50-150	2		100
Tetrachloroethylene	5	10	ug/Kg	<MDL	250	209	84		50-150	250	210	84		50-150	0		100
Ethylbenzene	5	10	ug/Kg	<MDL	250	214	86		50-150	250	212	85		50-150	1		100
Total Xylenes	5	10	ug/Kg	<MDL	500	427	85		50-150	500	419	84		50-150	1		100



Sample #	d4-1,2-Dichloroethane	d8-Toluene	4-Bromofluorobenzene
	70-121	84-138	59-113
L20541-11	101	99	100
L20541-12	102	97	100
L20541-13	103	97	98
L20541-14	101	96	99
L20541-15	100	98	98
L20541-16	100	97	99
L20541-17	100	98	99
L20541-18	101	98	98
L20541-19	101	98	101
WG54896-1	101	100	97
WG54896-2	101	99	102

METRO Environmental Laboratory

WORK GROUP REPORT (wk02)

Apr 27 2001, 01:25 pm

Work Group: WG54914 (PPS#232-clpestpcb) for Department: 7 - Organics, Trace

Created: 24-APR-01 Due: Operator: lm/mm

Sample	Project Number	Project Description	PKey	C Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L20541-10	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L 541-11	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-12	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-13	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-14	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L 541-15	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-16	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-17	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-18	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L20541-19	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L 541-2	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-3	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-4	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L20541-5	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-6	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-7	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-8	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-9	423001	Mercer Street Tunnel	SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
WG54914-1	MB			S CLPESTPCB	OTHR SOLID	PREP	U	24-APR-01	
WG54914-10	SRM			S CLPESTPCB	OTHR SOLID	PREP	U	24-APR-01	
L 54914-2	SB			S CLPESTPCB	OTHR SOLID	PREP	U	24-APR-01	
L 54914-3	SB		SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	
WG54914-4	MS		SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	
WG54914-5	MSD		SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	
L 54914-6	MS		SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	
L 54914-7	MSD		SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	
L 54914-8	LD		SED	S CLPESTPCB	SALTWTRSED	PREP	U	24-APR-01	
WG54914-9	SRM			S CLPESTPCB	OTHR SOLID	PREP	U	24-APR-01	

Comments:

L 541-1 CHEM: comp-3 / TAX: rep-3  
 L20541-10 CHEM: comp-3 / TAX: rep-3  
 L20541-11 CHEM: comp-3 / TAX: rep-3  
 L 541-12 CHEM: comp-3 / TAX: rep-3  
 L 541-13 CHEM FREP  
 L 541-14 CHEM: comp-3 / TAX: rep-3  
 L20541-15 CHEM: comp-3 / TAX: rep-3  
 L20541-16 CHEM: comp-3 / TAX: rep-3  
 L 541-17 CHEM: comp-3 / TAX: rep-3  
 L 541-18 CHEM: comp-3 / TAX: rep-3  
 L20541-19 CHEM FREP  
 L20541-2 CHEM: comp-3 / TAX: rep-3  
 L20541-3 CHEM: comp-3 / TAX: rep-3  
 L 541-4 CHEM: comp-3 / TAX: rep-3  
 L 541-5 CHEM: comp-3 / TAX: rep-3  
 L20541-6 CHEM: comp-3 / TAX: rep-3  
 L20541-7 CHEM: comp-3 / TAX: rep-3  
 L 541-8 CHEM: comp-3 / TAX: rep-3  
 L 541-9 CHEM: comp-3 / TAX: rep-3  
 WG54914-1 MB042401  
 WG54914-10 HS2  
 WG54914-2 WG54914-1  
 L 54914-3 WG54914-1  
 L 54914-4 L20541-1  
 L 54914-5 WG54914-4 L20541-1  
 WG54914-6 L20541-2  
 WG54914-7 WG54914-6 L20541-2  
 L 54914-8 L20541-3  
 L 54914-9 1944

S. Y. Rens  
 6-14-01

MB:WG54914-1 Matrix: OTHR SOLID Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Alpha-BHC	.27	.533	ug/Kg	<MDL	
Beta-BHC	.27	.533	ug/Kg	<MDL	
Delta-BHC	.27	.533	ug/Kg	<MDL	
Gamma-BHC (Lindane)	.27	.533	ug/Kg	<MDL	
Heptachlor	.27	.533	ug/Kg	<MDL	
Aldrin	.27	.533	ug/Kg	<MDL	
Heptachlor Epoxide	.27	.533	ug/Kg	<MDL	
Endosulfan I	.27	.533	ug/Kg	<MDL	
Dieldrin	.27	.533	ug/Kg	<MDL	
4,4'-DDE	.27	.533	ug/Kg	<MDL	
Endrin	.27	.533	ug/Kg	<MDL	
Endosulfan II	.27	.533	ug/Kg	<MDL	
4,4'-DDD	.27	.533	ug/Kg	<MDL	
Endrin Aldehyde	.27	.533	ug/Kg	<MDL	
Endosulfan Sulfate	.27	.533	ug/Kg	<MDL	
4,4'-DDT	.27	.533	ug/Kg	<MDL	
Methoxychlor	1.3	2.67	ug/Kg	<MDL	
Chlordane	.27	.533	ug/Kg	<MDL	
Toxaphene	2.7	5.33	ug/Kg	<MDL	
Aroclor 1016	2.7	5.33	ug/Kg	<MDL	
Aroclor 1221	2.7	5.33	ug/Kg	<MDL	
Aroclor 1232	2.7	5.33	ug/Kg	<MDL	
Aroclor 1242	2.7	5.33	ug/Kg	<MDL	
Aroclor 1248	2.7	5.33	ug/Kg	<MDL	
Aroclor 1254	2.7	5.33	ug/Kg	<MDL	
Aroclor 1260	2.7	5.33	ug/Kg	<MDL	

SB:WG54914-2 MB:WG54914-1 Matrix: OTHR SOLID Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Alpha-BHC	.27	.533	ug/Kg	<MDL	2.6667	1.7	64		50-150								
Beta-BHC	.27	.533	ug/Kg	<MDL	2.6667	2.27	85		50-150								
Delta-BHC	.27	.533	ug/Kg	<MDL	2.6667	2.52	95		50-150								
Gamma-BHC (Lindane)	.27	.533	ug/Kg	<MDL	2.6667	1.95	73		50-150								
Heptachlor	.27	.533	ug/Kg	<MDL	2.6667	1.91	72		50-150								
Aldrin	.27	.533	ug/Kg	<MDL	2.6667	1.82	68		50-150								
Heptachlor Epoxide	.27	.533	ug/Kg	<MDL	2.6667	2.35	88		50-150								
Endosulfan I	.27	.533	ug/Kg	<MDL	2.6667	2.31	86		50-150								
Dieldrin	.27	.533	ug/Kg	<MDL	2.6667	2.52	95		50-150								
4,4'-DDE	.27	.533	ug/Kg	<MDL	2.6667	2.52	94		50-150								
Endrin	.27	.533	ug/Kg	<MDL	2.6667	2.94	110		50-150								
Endosulfan II	.27	.533	ug/Kg	<MDL	2.6667	2.45	92		50-150								
4,4'-DDD	.27	.533	ug/Kg	<MDL	2.6667	2.59	97		50-150								
Endrin Aldehyde	.27	.533	ug/Kg	<MDL	2.6667	<MDL	0	*	50-150								
Endosulfan Sulfate	.27	.533	ug/Kg	<MDL	2.6667	2.24	84		50-150								
4,4'-DDT	.27	.533	ug/Kg	<MDL	2.6667	2.84	107		50-150								
Methoxychlor	1.3	2.67	ug/Kg	<MDL	2.6667	2.93	110		50-150								

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/14/01 07:00  
Run ID: R67685 Workgroup: WG54914 (PPS#232-clpestpcb)

SB:WG54914-3 MB:WG54914-1 Matrix: SALTWRSED Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec. Qual	Limits	Truevalue	Value	% Rec. Qual	Limits	RPD/RSD Qual	Limits
Aroclor 1016	2.7	5.33	ug/Kg	<MDL	20	14.4	72	50-150						
Aroclor 1260	2.7	5.33	ug/Kg	<MDL	20	21.9	110	50-150						

MS:WG54914-4 MSD:WG54914-5 L20541-1 Matrix: SALTWRSED Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec. Qual	Limits	Truevalue	MSD Value	% Rec. Qual	Limits	RPD/RSD Qual	Limits
Alpha-BHC	.27	.533	ug/Kg	<MDL	2.6667	2.53	95	50-150	2.6667	2.21	83	50-150	13	100
Beta-BHC	.27	.533	ug/Kg	<MDL	2.6667	2.45	92	50-150	2.6667	2.11	79	50-150	15	100
Delta-BHC	.27	.533	ug/Kg	<MDL	2.6667	2.64	99	50-150	2.6667	2.45	92	50-150	7	100
Gamma-BHC (Lindane)	.27	.533	ug/Kg	<MDL	2.6667	2.43	91	50-150	2.6667	2.11	79	50-150	14	100
Heptachlor	.27	.533	ug/Kg	<MDL	2.6667	2.77	104	50-150	2.6667	2.27	85	50-150	20	100
Aldrin	.27	.533	ug/Kg	<MDL	2.6667	2.45	92	50-150	2.6667	2.16	81	50-150	13	100
Heptachlor Epoxide	.27	.533	ug/Kg	<MDL	2.6667	2.67	100	50-150	2.6667	2.34	88	50-150	13	100
Endosulfan I	.27	.533	ug/Kg	<MDL	2.6667	2.54	95	50-150	2.6667	2.13	80	50-150	17	100
Dieldrin	.27	.533	ug/Kg	<MDL	2.6667	3.03	114	50-150	2.6667	2.45	92	50-150	21	100
4,4'-DDE	.27	.533	ug/Kg	.84	2.6667	3.52	101	50-150	2.6667	3.15	87	50-150	15	100
Endrin	.27	.533	ug/Kg	<MDL	2.6667	3.22	121	50-150	2.6667	3.18	119	50-150	2	100
Endosulfan II	.27	.533	ug/Kg	<MDL	2.6667	3.58	134	50-150	2.6667	3.12	117	50-150	14	100
4,4'-DDD	.27	.533	ug/Kg	4.52	2.6667	8.51	150	50-150	2.6667	12.2	288	50-150	63	100
Endrin Aldehyde	.27	.533	ug/Kg	<MDL	2.6667	1.06	40	50-150	2.6667	.961	36	50-150	11	100
Endosulfan Sulfate	.27	.533	ug/Kg	<MDL	2.6667	2.06	77	50-150	2.6667	1.93	72	50-150	7	100
4,4'-DDT	.27	.533	ug/Kg	<MDL	2.6667	2.66	100	50-150	2.6667	<MDL	0	50-150	200	*
Methoxychlor	1.3	2.67	ug/Kg	<MDL	2.6667	2.5	94	50-150	2.6667	2.6	90	50-150		100
Chlordane	.27	.533	ug/Kg	<MDL				50-150	<MDL			50-150		100
Toxaphene	2.7	5.33	ug/Kg	<MDL				50-150	<MDL			50-150		100
Aroclor 1016	2.7	5.33	ug/Kg	<MDL				50-150	<MDL			50-150		100
Aroclor 1221	2.7	5.33	ug/Kg	<MDL				50-150	<MDL			50-150		100
Aroclor 1232	2.7	5.33	ug/Kg	<MDL				50-150	<MDL			50-150		100
Aroclor 1242	2.7	5.33	ug/Kg	<MDL				50-150	<MDL			50-150		100
Aroclor 1248	2.7	5.33	ug/Kg	42.6				50-150	<MDL			50-150		100
Aroclor 1254	2.7	5.33	ug/Kg	90				50-150	<MDL			50-150		100
Aroclor 1260	2.7	5.33	ug/Kg	75.3				50-150	<MDL			50-150		100

CBE 8/27/01

CBE 8/27/01

MS:WG54914-6 MSD:WG54914-7 L20541-2 Matrix: SALTWRSED Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec. Qual	Limits	Truevalue	MSD Value	% Rec. Qual	Limits	RPD/RSD Qual	Limits
Alpha-BHC	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Beta-BHC	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Delta-BHC	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Gamma-BHC (Lindane)	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Heptachlor	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Aldrin	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Heptachlor Epoxide	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Endosulfan I	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
Dieldrin	.27	.533	ug/Kg	<MDL		<MDL		50-150	<MDL			50-150		100
4,4'-DDE	.27	.533	ug/Kg	.711		<MDL		50-150	<MDL			50-150		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/14/01 07:00  
Run ID: R67685 Workgroup: WG54914 (PPS#232-clpestpcb)

MS:WG54914-6 MSD:WG54914-7 L20541-2 Matrix: SALTWTRSED Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec. Qual	Limits	Truevalue	MSD Value	% Rec. Qual	Limits	RPD/RSD Qual	Limits
Endrin	.27	.533	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Endosulfan II	.27	.533	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
4,4'-DDD	.27	.533	ug/Kg	3.54		<MDL		50-150		<MDL		50-150		100
Endrin Aldehyde	.27	.533	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Endosulfan Sulfate	.27	.533	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
4,4'-DDT	.27	.533	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Methoxychlor	1.3	2.67	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Chlordane	.27	.533	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Toxaphene	2.7	5.33	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Aroclor 1016	2.7	5.33	ug/Kg	<MDL	20	28	140	50-150	20	28.1	140	50-150	0	100
Aroclor 1221	2.7	5.33	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Aroclor 1232	2.7	5.33	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Aroclor 1242	2.7	5.33	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Aroclor 1248	2.7	5.33	ug/Kg	<MDL		<MDL		50-150		<MDL		50-150		100
Aroclor 1254	2.7	5.33	ug/Kg	58.4		48.7		50-150		59.6		50-150		100
Aroclor 1260	2.7	5.33	ug/Kg	57	20	65.7	43	G 50-150	20	67.9	54	50-150	23	100

LD:WG54914-8 L20541-3 Matrix: SALTWTRSED Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec. Qual	Limits					RPD/RSD Qual	Limits
Alpha-BHC	.27	.533	ug/Kg	<MDL		<MDL								100
Beta-BHC	.27	.533	ug/Kg	<MDL		<MDL								100
Delta-BHC	.27	.533	ug/Kg	<MDL		<MDL								100
Gamma-BHC (Lindane)	.27	.533	ug/Kg	<MDL		<MDL								100
Heptachlor	.27	.533	ug/Kg	<MDL		<MDL								100
Aldrin	.27	.533	ug/Kg	<MDL		<MDL								100
Heptachlor Epoxide	.27	.533	ug/Kg	<MDL		<MDL								100
Endosulfan I	.27	.533	ug/Kg	<MDL		<MDL								100
Dieldrin	.27	.533	ug/Kg	<MDL		<MDL								100
4,4'-DDE	.27	.533	ug/Kg	1.11		.837						28		100
Endrin	.27	.533	ug/Kg	<MDL		<MDL								100
Endosulfan II	.27	.533	ug/Kg	<MDL		<MDL								100
4,4'-DDD	.27	.533	ug/Kg	9.65		5.04						63		100
Endrin Aldehyde	.27	.533	ug/Kg	<MDL		<MDL								100
Endosulfan Sulfate	.27	.533	ug/Kg	<MDL		<MDL								100
4,4'-DDT	.27	.533	ug/Kg	<MDL		<MDL								100
Methoxychlor	1.3	2.67	ug/Kg	<MDL		<MDL								100
Chlordane	.27	.533	ug/Kg	<MDL		<MDL								100
Toxaphene	2.7	5.33	ug/Kg	<MDL		<MDL								100
Aroclor 1016	2.7	5.33	ug/Kg	<MDL		<MDL								100
Aroclor 1221	2.7	5.33	ug/Kg	<MDL		<MDL								100
Aroclor 1232	2.7	5.33	ug/Kg	<MDL		<MDL								100
Aroclor 1242	2.7	5.33	ug/Kg	<MDL		<MDL								100
Aroclor 1248	2.7	5.33	ug/Kg	59.1		53.7						10		100
Aroclor 1254	2.7	5.33	ug/Kg	119		101						17		100
Aroclor 1260	2.7	5.33	ug/Kg	81.1		71.3						13		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 06/14/01 07:00  
 Run ID: R67685 Workgroup: WG54914 (PPS#232-clpestpcb)

SRM:WG54914-9 Matrix: OTHR SOLID Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec. Qual	Limits	RPD/RSD Qual	Limits
4,4'-DDE	2.7	10.7	ug/Kg	6.4427	4.6	71	G	80-120		
4,4'-DDD	2.7	10.7	ug/Kg	4.9493	4.5	91		80-120		
4,4'-DDT	5.3	10.7	ug/Kg		<MDL			80-120		
Aroclor 1254	53	107	ug/Kg		<MDL			80-120		

SRM:WG54914-10 Matrix: OTHR SOLID Listtype: ORPP Method: EPA 8081A/8082 (7-3-03-002) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec. Qual	Limits	RPD/RSD Qual	Limits
4,4'-DDE	.53	1.07	ug/Kg		<MDL			80-120		
4,4'-DDD	.53	1.07	ug/Kg		<MDL			80-120		
4,4'-DDT	.53	1.07	ug/Kg		<MDL			80-120		
Aroclor 1254	5.3	10.7	ug/Kg	111.7867	108	96		80-120		



Sample #	2,4,5,6-Tetrachloro-m-xylene 50-150	Decachlorobiphenyl 50-150
L20541-1	40	123
L20541-10	95	114
L20541-11	93	102
L20541-12	95	121
L20541-13	95	99
L20541-14	113	95
L20541-15	78	102
L20541-16	41	101
L20541-17	24	93
L20541-18	20	86
L20541-19	16	89
L20541-2	46	110
L20541-3	44	106
L20541-4	91	114
L20541-5	92	99
L20541-6	85	101
L20541-7	88	104
L20541-8	90	121
L20541-9	87	96
WG54914-1	27	87
WG54914-10	34	98
WG54914-2	36	98
WG54914-3	37	111
WG54914-4	104	98
WG54914-5	94	104
WG54914-6	92	97
WG54914-7	50	111
WG54914-8	27	98
WG54914-9	22	101

## METRO Environmental Laboratory

## WORK GROUP REPORT (wk02)

May 01 2001, 01:26 pm

Work Group: WG54935 (BS#108-BNALL) for Department: 7 - Organics, Trace

Created: 25-APR-01 Due: Operator: lm/mm

\$ ple	Project Number	Project Description	PKey C	Product	Matrix	Stat	UA	Workdate	Due date
L20541-1	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L20541-10	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L 541-11	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-12	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-13	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-14	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L20541-15	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-16	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-17	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-18	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L20541-19	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	03-MAY-01	04-JUN-01
L 541-2	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-3	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-4	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L20541-5	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L20541-6	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-7	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	23-APR-01	25-MAY-01
L 541-8	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
L 541-9	423001	Mercer Street Tunnel	SED	S BNALL	SALTWTRSED	PREP	U	24-APR-01	26-MAY-01
WG54935-1	MB			S BNALL	OTHR SOLID	PREP	U	25-APR-01	
WG54935-2	SB			S BNALL	OTHR SOLID	PREP	U	25-APR-01	
W 4935-3	MS		SED	S BNALL	SALTWTRSED	PREP	U	25-APR-01	
W 4935-4	MSD		SED	S BNALL	SALTWTRSED	PREP	U	25-APR-01	
WG54935-5	LD		SED	S BNALL	SALTWTRSED	PREP	U	25-APR-01	
WG54935-6	SRM			S BNALL	OTHR SOLID	PREP	U	25-APR-01	

## Comments:

L20541-1 CHEM: comp-3 / TAX: rep-3  
L20541-10 CHEM: comp-3 / TAX: rep-3  
L 541-11 CHEM: comp-3 / TAX: rep-3  
L 541-12 CHEM: comp-3 / TAX: rep-3  
L 541-13 CHEM: comp-3 / TAX: rep-3  
L20541-14 CHEM: comp-3 / TAX: rep-3  
L20541-15 CHEM: comp-3 / TAX: rep-3  
L 541-16 CHEM: comp-3 / TAX: rep-3  
L 541-17 CHEM: comp-3 / TAX: rep-3  
L 541-18 CHEM: comp-3 / TAX: rep-3  
L20541-19 CHEM: comp-3 / TAX: rep-3  
L20541-2 CHEM: comp-3 / TAX: rep-3  
L 541-3 CHEM: comp-3 / TAX: rep-3  
L 541-4 CHEM: comp-3 / TAX: rep-3  
L20541-5 CHEM: comp-3 / TAX: rep-3  
L20541-6 CHEM: comp-3 / TAX: rep-3  
L20541-7 CHEM: comp-3 / TAX: rep-3  
L 541-8 CHEM: comp-3 / TAX: rep-3  
L 541-9 CHEM: comp-3 / TAX: rep-3  
WG54935-1 MB042501  
WG54935-2 WG54935-1  
W 4935-3 L20541-2  
W 4935-4 WG54935-3 L20541-2  
W 4935-5 L20541-3  
WG54935-6 1944



*J. J. Siro*  
6-21-01

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/19/01 09:25  
Run ID: R66569 Workgroup: WG54935 (BS#108-BNALL)

MB:WG54935-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	
Phenol	9	18	ug/Kg	<MDL	
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	
2-Chlorophenol	8	16	ug/Kg	<MDL	
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	
Hexachloroethane	15	30	ug/Kg	<MDL	
Nitrobenzene	16	32	ug/Kg	<MDL	
Isophorone	19	38	ug/Kg	<MDL	
2-Nitrophenol	15	30	ug/Kg	<MDL	
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	
Naphthalene	14	28	ug/Kg	<MDL	
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	
2-Chloronaphthalene	16	32	ug/Kg	<MDL	
Acenaphthylene	15	30	ug/Kg	<MDL	
Dimethyl Phthalate	11	22	ug/Kg	<MDL	
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	
Acenaphthene	7	14	ug/Kg	<MDL	
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	
Fluorene	13	26	ug/Kg	<MDL	
Diethyl Phthalate	6	12	ug/Kg	<MDL	
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	
Pentachlorophenol	5	10	ug/Kg	<MDL	
Phenanthrene	4	8	ug/Kg	<MDL	
Anthracene	4	8	ug/Kg	<MDL	
Di-N-Butyl Phthalate	5	10	ug/Kg	10.5	B
Fluoranthene	8	16	ug/Kg	<MDL	
Pyrene	4	8	ug/Kg	<MDL	
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL	
Benzo(a)anthracene	2	4	ug/Kg	<MDL	
Chrysene	4	8	ug/Kg	<MDL	
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	<MDL	
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	
Benzo(b)fluoranthene	3	6	ug/Kg	<MDL	
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL	
Benzo(a)pyrene	3	6	ug/Kg	<MDL	
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL	
Dibenzo(a,h)anthracene	7	14	ug/Kg	<MDL	
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL	
Aniline	19	38	ug/Kg	<MDL	

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/19/01 09:25  
Run ID: R66569 Workgroup: WG54935 (BS#108-BNALL)

MB:WG54935-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Qual
Benzyl Alcohol	6	12	ug/Kg	<MDL	
2-Methylphenol	19	38	ug/Kg	<MDL	
4-Methylphenol	16	32	ug/Kg	<MDL	
Benzoic Acid	6	12	ug/Kg	<MDL	
2-Methylnaphthalene	14	28	ug/Kg	<MDL	
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	
Dibenzofuran	14	28	ug/Kg	<MDL	
Carbazole	7	14	ug/Kg	<MDL	
Coprostanol	14	28	ug/Kg	<MDL	
Caffeine	6	12	ug/Kg	<MDL	

SB:WG54935-2 MB:WG54935-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	66.6667	25	38	*	50-150								100
Phenol	9	18	ug/Kg	<MDL	66.6667	12	18	*	50-150								100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
2-Chlorophenol	8	16	ug/Kg	<MDL	66.6667	12	17	*	50-150								100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	66.6667	15	23	*	50-150								100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	66.6667	20.1	30	*	50-150								100
Hexachloroethane	15	30	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Nitrobenzene	16	32	ug/Kg	<MDL	66.6667	18	27	*	50-150								100
Isophorone	19	38	ug/Kg	<MDL	66.6667	25	38	*	50-150								100
2-Nitrophenol	15	30	ug/Kg	<MDL	66.6667	25	37	*	50-150								100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	66.6667	29	43	*	50-150								100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	66.6667	23	35	*	50-150								100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	13.3	20	*	50-150								100
Naphthalene	14	28	ug/Kg	<MDL	66.6667	15	23	*	50-150								100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	66.6667	7.04	11	*	50-150								100
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	66.6667	22	33	*	50-150								100
2-Chloronaphthalene	16	32	ug/Kg	<MDL	66.6667	27	40	*	50-150								100
Acenaphthylene	15	30	ug/Kg	<MDL	66.6667	37.7	56		50-150								100
Dimethyl Phthalate	11	22	ug/Kg	<MDL	66.6667	55.6	83		50-150								100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	66.6667	68.1	102		50-150								100
Acenaphthene	7	14	ug/Kg	<MDL	66.6667	30.8	46	*	50-150								100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	66.6667	78.2	117		50-150								100
Fluorene	13	26	ug/Kg	<MDL	66.6667	41.3	62		50-150								100
Diethyl Phthalate	6	12	ug/Kg	<MDL	66.6667	75.8	114		50-150								100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	66.6667	39.2	59		50-150								100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	66.6667	60.3	90		50-150								100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	66.6667	47.2	71		50-150								100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	66.6667	46.4	70		50-150								100
Pentachlorophenol	5	10	ug/Kg	<MDL	66.6667	53.4	80		50-150								100
Phenanthrene	4	8	ug/Kg	<MDL	66.6667	49.2	74		50-150								100

1.7-2000  
6-21-01

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/19/01 09:25  
Run ID: R66569 Workgroup: WG54935 (BS#108-BNALL)

SB:WG54935-2 MB:WG54935-1 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	MB Value	Truevalue	SB Value	% Rec.	Qual	Limits	Truevalue	Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Anthracene	4	8	ug/Kg	<MDL	66.6667	36.6	55		50-150								100
Di-N-Butyl Phthalate	5	10	ug/Kg	10.5	66.6667	144	201	*	50-150								100
Fluoranthene	8	16	ug/Kg	<MDL	66.6667	81.3	122		50-150								100
Pyrene	4	8	ug/Kg	<MDL	66.6667	66.6	100		50-150								100
Benzyl Butyl Phthalate	6	12	ug/Kg	<MDL	66.6667	135	203	*	50-150								100
Benzo(a)anthracene	2	4	ug/Kg	<MDL	66.6667	63.1	95		50-150								100
Chrysene	4	8	ug/Kg	<MDL	66.6667	63.7	95		50-150								100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	<MDL	66.6667	125	187	*	50-150								100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	66.6667	145	218	*	50-150								100
Benzo(b)fluoranthene	3	6	ug/Kg	<MDL	66.6667	70.2	105		50-150								100
Benzo(k)fluoranthene	3	6	ug/Kg	<MDL	66.6667	72.2	108		50-150								100
Benzo(a)pyrene	3	6	ug/Kg	<MDL	66.6667	6.05	9	*	50-150								100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	<MDL	66.6667	63.3	95		50-150								100
Dibenzo(a,h)anthracene	7	14	ug/Kg	<MDL	66.6667	62.6	94		50-150								100
Benzo(g,h,i)perylene	8	16	ug/Kg	<MDL	66.6667	57.8	87		50-150								100
Aniline	19	38	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Benzyl Alcohol	6	12	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
2-Methylphenol	19	38	ug/Kg	<MDL	66.6667	24	36	*	50-150								100
4-Methylphenol	16	32	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Benzoic Acid	6	12	ug/Kg	<MDL	66.6667	52.5	79		50-150								100
2-Methylnaphthalene	14	28	ug/Kg	<MDL	66.6667	28.6	43	*	50-150								100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	66.6667	35.9	54		50-150								100
Dibenzofuran	14	28	ug/Kg	<MDL	66.6667	34.6	52		50-150								100
Carbazole	7	14	ug/Kg	<MDL	66.6667	66.4	100		50-150								100
Coprostanol	14	28	ug/Kg	<MDL	66.6667	<MDL	0	*	50-150								100
Caffeine	6	12	ug/Kg	<MDL	66.6667	96.6	145		50-150								100

MS:WG54935-3 MSD:WG54935-4 L20541-2 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec.	Qual	Limits	Truevalue	MSD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL	66.6667	35	53		50-150	66.6667	41.2	62		50-150	16		100
Phenol	9	18	ug/Kg	<MDL	66.6667	41.9	63		50-150	66.6667	35.6	53		50-150	17		100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL	66.6667	19	28	G	50-150	66.6667	24	36	*	50-150			100
2-Chlorophenol	8	16	ug/Kg	<MDL	66.6667	27.5	41	G	50-150	66.6667	32.4	49	*	50-150	18		100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	6.19	9	X	50-150	66.6667	13.1	20	*	50-150	76		100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL	66.6667	7.79	12	G	50-150	66.6667	15.4	23	*	50-150	63		100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	8.61	13	G	50-150	66.6667	18.1	27	*	50-150	70		100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL	66.6667	37.3	56		50-150	66.6667	21	31	*	50-150	57		100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL	66.6667	49.3	74		50-150	66.6667	51.1	77		50-150	4		100
Hexachloroethane	15	30	ug/Kg	<MDL	66.6667	<MDL	0	X	50-150	66.6667	<MDL			50-150			100
Nitrobenzene	16	32	ug/Kg	<MDL	66.6667	30	44	G	50-150	66.6667	36.4	55		50-150	22		100
Isophorone	19	38	ug/Kg	<MDL	66.6667	46.5	70		50-150	66.6667	45.6	68		50-150	3		100
2-Nitrophenol	15	30	ug/Kg	<MDL	66.6667	42.5	64		50-150	66.6667	41.9	63		50-150	2		100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL	66.6667	53.7	81		50-150	66.6667	54.2	81		50-150	0		100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL	66.6667	46.6	70		50-150	66.6667	48.6	73		50-150	4		100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL	66.6667	60.6	91		50-150	66.6667	60.5	91		50-150	0		100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL	66.6667	26.6	40		50-150	66.6667	36.6	55		50-150	32		100
Naphthalene	14	28	ug/Kg	19	66.6667	44.5	38	G	50-150	66.6667	44.5	38	*	50-150	0		100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL	66.6667	17.6	26	G	50-150	66.6667	29.6	44	*	50-150	51		100

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/19/01 09:25  
Run ID: R66569 Workgroup: WG54935 (BS#108-BNALL)

MS:WG54935-3 MSD:WG54935-4 L20541-2 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	MS Value	% Rec. Qual	Limits	Truevalue	MSD Value	% Rec. Qual	Limits	RPD/RSD	Qual	Limits
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL	66.6667	59.3	89	50-150	66.6667	62.8	94	50-150	5		100
2-Chloronaphthalene	16	32	ug/Kg	<MDL	66.6667	45.3	68	50-150	66.6667	48.7	73	50-150	7		100
Acenaphthylene	15	30	ug/Kg	30	66.6667	98.9	103	50-150	66.6667	102	109	50-150	6		100
Dimethyl Phthalate	11	22	ug/Kg	<MDL	66.6667	101	152	50-150	66.6667	96.7	145	50-150	5		100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL	66.6667	155	232	50-150	66.6667	160	240	50-150	3	*	100
Acenaphthene	7	14	ug/Kg	42.7	66.6667	89.9	71	50-150	66.6667	74.7	48	50-150	39	*	100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL	66.6667	123	185	50-150	66.6667	120	180	50-150	3	*	100
Fluorene	13	26	ug/Kg	60.4	66.6667	119	87	50-150	66.6667	94.7	51	50-150	52		100
Diethyl Phthalate	6	12	ug/Kg	<MDL	66.6667	96.7	145	50-150	66.6667	89.1	134	50-150	8		100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL	66.6667	61.1	92	50-150	66.6667	53.5	80	50-150	14		100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL	66.6667	50.5	76	50-150	66.6667	71.9	108	50-150	35		100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL	66.6667	97.2	146	50-150	66.6667	106	158	50-150	8	*	100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL	66.6667	63.5	95	50-150	66.6667	68.1	102	50-150	7		100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL	66.6667	63.8	96	50-150	66.6667	70.6	106	50-150	10		100
Pentachlorophenol	5	10	ug/Kg	<MDL	66.6667	77.8	117	50-150	66.6667	58.3	87	50-150	29		100
Phenanthrene	4	8	ug/Kg	611	66.6667	515	-145	50-150	66.6667	286	-489	50-150	-109	*	100
Anthracene	4	8	ug/Kg	222	66.6667	234	18	50-150	66.6667	227	8	50-150	77	*	100
Di-N-Butyl Phthalate	5	10	ug/Kg	43.2	66.6667	189	219	50-150	66.6667	206	244	50-150	11	*	100
Fluoranthene	8	16	ug/Kg	1090	66.6667	825	-393	50-150	66.6667	591	-743	50-150	-62	*	100
Pyrene	4	8	ug/Kg	743	66.6667	562	-271	50-150	66.6667	473	-405	50-150	-40	*	100
Benzyl Butyl Phthalate	6	12	ug/Kg	106	66.6667	272	249	50-150	66.6667	137	47	50-150	136	*	100
Benzo(a)anthracene	2	4	ug/Kg	448	66.6667	338	-164	50-150	66.6667	304	-216	50-150	-27	*	100
Chrysene	4	8	ug/Kg	583	66.6667	482	-152	50-150	66.6667	415	-251	50-150	-49	*	100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	299	66.6667	309	16	50-150	66.6667	339	60	50-150	116	*	100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL	66.6667	185	278	50-150	66.6667	238	358	50-150	25	*	100
Benzo(b)fluoranthene	3	6	ug/Kg	597	66.6667	507	-135	50-150	66.6667	438	-238	50-150	-55	*	100
Benzo(k)fluoranthene	3	6	ug/Kg	239	66.6667	253	21	50-150	66.6667	243	5	50-150	123	*	100
Benzo(a)pyrene	3	6	ug/Kg	482	66.6667	403	-118	50-150	66.6667	366	-174	50-150	-38	*	100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	219	66.6667	218	-2	50-150	66.6667	199	-31	50-150	-176	*	100
Dibenzo(a,h)anthracene	7	14	ug/Kg	47.4	66.6667	79.9	49	50-150	66.6667	78.4	46	50-150	6	*	100
Benzo(g,h,i)perylene	8	16	ug/Kg	171	66.6667	162	-13	50-150	66.6667	145	-39	50-150	-100	*	100
Aniline	19	38	ug/Kg	<MDL	66.6667	<MDL	0	50-150	66.6667	24	36	50-150		*	100
Benzyl Alcohol	6	12	ug/Kg	<MDL	66.6667	<MDL	0	50-150	66.6667	<MDL		50-150			100
2-Methylphenol	19	38	ug/Kg	<MDL	66.6667	49.4	74	50-150	66.6667	67.9	102	50-150	32		100
4-Methylphenol	16	32	ug/Kg	<MDL	66.6667	58.7	88	50-150	66.6667	51	76	50-150	15		100
Benzoic Acid	6	12	ug/Kg	142	66.6667	213	106	50-150	66.6667	231	133	50-150	23		100
2-Methylnaphthalene	14	28	ug/Kg	18	66.6667	67.2	74	50-150	66.6667	61.1	65	50-150	13		100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL	66.6667	66.1	99	50-150	66.6667	62.5	94	50-150	5		100
Dibenzofuran	14	28	ug/Kg	23	66.6667	86.1	95	50-150	66.6667	66.5	66	50-150	36		100
Carbazole	7	14	ug/Kg	78.6	66.6667	137	88	50-150	66.6667	111	48	50-150	59	*	100
Coprostanol	14	28	ug/Kg	<MDL	666.6667	<MDL	0	50-150	666.6667	<MDL		50-150			100
Caffeine	6	12	ug/Kg	<MDL	66.6667	95.8	144	50-150	66.6667	97	145	50-150	1		100

LD:WG54935-5 L20541-3 Matrix: SALTWTRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec. Qual	Limits	RPD/RSD	Qual	Limits
N-Nitrosodimethylamine	20	40	ug/Kg	<MDL		<MDL					100
Phenol	9	18	ug/Kg	<MDL		<MDL					100
Bis(2-Chloroethyl)Ether	15	30	ug/Kg	<MDL		<MDL					100

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 06/19/01 09:26  
 Run ID: R66569 Workgroup: WG54935 (BS#108-BNALL)

LD:WG54935-5 L20541-3 Matrix: SALTWRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
2-Chlorophenol	8	16	ug/Kg	<MDL		<MDL						100
1,3-Dichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
1,4-Dichlorobenzene	.13	.264	ug/Kg	<MDL		<MDL						100
1,2-Dichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
Bis(2-Chloroisopropyl)Ether	15	30	ug/Kg	<MDL		<MDL						100
N-Nitrosodi-N-Propylamine	9	18	ug/Kg	<MDL		<MDL						100
Hexachloroethane	15	30	ug/Kg	<MDL		<MDL						100
Nitrobenzene	16	32	ug/Kg	<MDL		<MDL						100
Isophorone	19	38	ug/Kg	<MDL		<MDL						100
2-Nitrophenol	15	30	ug/Kg	<MDL		<MDL						100
2,4-Dimethylphenol	7	14	ug/Kg	<MDL		<MDL						100
Bis(2-Chloroethoxy)Methane	17	34	ug/Kg	<MDL		<MDL						100
2,4-Dichlorophenol	16	32	ug/Kg	<MDL		<MDL						100
1,2,4-Trichlorobenzene	.26	.53	ug/Kg	<MDL		<MDL						100
Naphthalene	14	28	ug/Kg	<MDL		<MDL						100
Hexachlorobutadiene	.75	1.5	ug/Kg	<MDL		<MDL						100
2,4,6-Trichlorophenol	13	26	ug/Kg	<MDL		<MDL						100
2-Chloronaphthalene	16	32	ug/Kg	<MDL		<MDL						100
Acenaphthylene	15	30	ug/Kg	19		17						100
Dimethyl Phthalate	11	22	ug/Kg	<MDL		<MDL						100
2,6-Dinitrotoluene	10	20	ug/Kg	<MDL		<MDL						100
Acenaphthene	7	14	ug/Kg	40.6		27.8				37		100
2,4-Dinitrotoluene	3	6	ug/Kg	<MDL		<MDL						100
Fluorene	13	26	ug/Kg	51.9		28.1				60		100
Diethyl Phthalate	6	12	ug/Kg	<MDL		<MDL						100
4-Chlorophenyl Phenyl Ether	13	26	ug/Kg	<MDL		<MDL						100
N-Nitrosodiphenylamine	20	40	ug/Kg	<MDL		<MDL						100
1,2-Diphenylhydrazine	10	20	ug/Kg	<MDL		<MDL						100
4-Bromophenyl Phenyl Ether	9	18	ug/Kg	<MDL		<MDL						100
Hexachlorobenzene	.66	1.33	ug/Kg	<MDL		<MDL						100
Pentachlorophenol	5	10	ug/Kg	<MDL		<MDL						100
Phenanthrene	4	8	ug/Kg	335		239				33		100
Anthracene	4	8	ug/Kg	197		120				48		100
Di-N-Butyl Phthalate	5	10	ug/Kg	29.9		35.1				16		100
Fluoranthene	8	16	ug/Kg	496		480				3		100
Pyrene	4	8	ug/Kg	465		400				15		100
Benzyl Butyl Phthalate	6	12	ug/Kg	48		62.1				26		100
Benzo(a)anthracene	2	4	ug/Kg	265		222				18		100
Chrysene	4	8	ug/Kg	295		310				5		100
Bis(2-Ethylhexyl)Phthalate	6.7	14	ug/Kg	281		355				23		100
Di-N-Octyl Phthalate	8	16	ug/Kg	<MDL		<MDL						100
Benzo(b)fluoranthene	3	6	ug/Kg	345		376				9		100
Benzo(k)fluoranthene	3	6	ug/Kg	151		171				13		100
Benzo(a)pyrene	3	6	ug/Kg	270		269				0		100
Indeno(1,2,3-Cd)Pyrene	9	18	ug/Kg	103		102				2		100
Dibenzo(a,h)anthracene	7	14	ug/Kg	25.7		27.3				6		100
Benzo(g,h,i)perylene	8	16	ug/Kg	80.4		94.9				16		100
Aniline	19	38	ug/Kg	<MDL		<MDL						100
Benzyl Alcohol	6	12	ug/Kg	<MDL		<MDL						100
2-Methylphenol	19	38	ug/Kg	<MDL		<MDL						100
4-Methylphenol	16	32	ug/Kg	<MDL		<MDL						100

KING COUNTY METRO ENVIRONMENTAL LABORATORY  
Lab QC Report - 06/19/01 09:26  
Run ID: R66569 Workgroup: WG54935 (BS#108-BNALL)

LD:WG54935-5 L20541-3 Matrix: SALTWRSED Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: 423001 PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	LD Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Benzoic Acid	6	12	ug/Kg	94.9		79.9				17		100
2-Methylnaphthalene	14	28	ug/Kg	<MDL		<MDL						100
2,4,5-Trichlorophenol	12	24	ug/Kg	<MDL		<MDL						100
Dibenzofuran	14	28	ug/Kg	<MDL		<MDL						100
Carbazole	7	14	ug/Kg	46.9		37.7				22		100
Coprostanol	14	28	ug/Kg	<MDL		<MDL						100
Caffeine	6	12	ug/Kg	<MDL		<MDL						100

SRM:WG54935-6 Matrix: OTHR SOLID Listtype: ORBNALL Method: EPA 3550B/8270C (7-3-01-004) Project: PKey: SED

Parameter	Mdl	Rdl	Units	SampValue	Truevalue	SRM Value	% Rec.	Qual	Limits	RPD/RSD	Qual	Limits
Naphthalene	200	2800	ug/Kg		986.6667	200	21	G	80-120			100
Fluorene	53	2600	ug/Kg		96	83	86		80-120			100
Hexachlorobenzene	27	133	ug/Kg		69.3333	43	62	G	80-120			100
Phenanthrene	53	800	ug/Kg		477.3333	240	50	G	80-120			100
Anthracene	53	800	ug/Kg	180	288	140	49	78	G	80-120		100
Fluoranthene	800	1600	ug/Kg	960	1536	810	53	84	G	80-120		100
Pyrene	400	800	ug/Kg	793	1269.3333	630	50	79	G	80-120		100
Benzo(a)anthracene	200	400	ug/Kg	418	669.3333	330	50	80	G	80-120		100
Chrysene	300	800	ug/Kg	372	594.6667	490	82	132	L	80-120		100
Benzo(b)fluoranthene	300	600	ug/Kg	724	1157.3333	944	82	130	L	80-120		100
Benzo(k)fluoranthene	300	600	ug/Kg	353	565.3333	480	85	136	L	80-120		100
Benzo(a)pyrene	300	600	ug/Kg	614	984	550	56	90	G	80-120		100
Indeno(1,2,3-Cd)Pyrene	53	1800	ug/Kg	490	784	440	56	90	G	80-120		100
Dibenzo(a,h)anthracene	53	1400	ug/Kg	723	114.6667	100	94	138	L	80-120		100
Benzo(g,h,i)perylene	53	1600	ug/Kg	514	821.3333	370	45	72	G	80-120		100

CASE  
8/30/01



KING COUNTY METRO ENVIRONMENTAL LABORATORY  
 Lab QC Report - 06/19/01 09:26  
 Run ID: R66569 Workgroup: WG54935 (BS#108-BNALL)

Sample #	2-Fluorophenol		d5-Phenol		d5-Nitrobenzene		d4-2-Chlorophenol		d4-1,2-Dichlorobenzene		2-Fluorobiphenyl		2,4,6-Tribromophenol		d14-Terphenyl	
	50-150		50-150		50-150		50-150		50-150		50-150		50-150		50-150	
L20541-1	45	avg=59.75	61	avg=76	70		51		45		77		82		112	
L20541-10	41 G	avg=39	39 G	avg=71	79		44 G		0		89		32 G		116	
L20541-11	32 G	avg=35.75	50 G	avg=63.5	66		37 G		0		67		24 G		121	
L20541-12	35 G	avg=33.5	35 G	avg=71.25	77		40 G		0		95		24 G		113	
L20541-13	30 G	avg=38.25	58 G	avg=66.25	69		45 G		0		68		20 G		128	
L20541-14	51 G	avg=42.5	56 G	avg=60	71		44 G		0		77		19 G		92	
L20541-15	58 G	avg=45	56 G	avg=56.25	70		46 G		0		69		20 G		86	
L20541-16	60 G	avg=48.5	61 G	avg=63.75	69		50 G		0		85		23 G		101	
L20541-17	55	avg=57.25	54	avg=63	61		56		25		65		64		101	
L20541-18	51	avg=67.25	58	avg=63.75	59		57		45		63		103		88	
L20541-19	50	avg=61	51	avg=57.75	54		51		36		57		92		84	
L20541-2	43	avg=61	51	avg=68.25	63		48		37		67		102		106	
L20541-3	34 G	avg=48	38 G	avg=61	52		37 G		37		61		83 G		94	
L20541-4	41	avg=53.25	52	avg=72.25	58		41		40		72		79		119	
L20541-5	45	avg=66.75	75	avg=78	66		56		50		78		91		118	
L20541-6	41	avg=55	47	avg=67.5	63		39		35		70		93		102	
L20541-7	35 G	avg=45.5	37 G	avg=61	56		40 G		18		68		70 G		102	
L20541-8	38 G	avg=46	47 G	avg=60.75	67		43 G		0		72		56 G		104	
L20541-9	36 G	avg=40.5	47 G	avg=59.25	64		42 G		0		63		37 G		110	
WG54935-1	30 G	avg=27.75	11 G	avg=63	45		23 G		51		49		47 G		107	
WG54935-2	29 G	avg=31	18 G	avg=66	54		25 G		31		55		52 G		124	
WG54935-3	44	avg=62	52	avg=85	81		50		40		88		102		131	
WG54935-4	43	avg=59	43	avg=90	87		48		46		94		102		133	
WG54935-5	57	avg=66	59	avg=79.25	78		58		47		79		90		113	
WG54935-6	69	avg=65.25	58	avg=80.25	86		69		54		77		65		104	

**Chain of Custody Forms  
Field Sheets**



# LABORATORY WORK ORDER

## Chain of Custody

King County Department of Natural Resources  
Water and Land Resources Division  
Environmental Laboratory  
322 West Ewing Street  
Seattle, Washington 98119-1507

Project Name: Denny Way Pre-construction Subtidal Sediments  
Project Number: 423001  
Laboratory Project Manager: Fritz Grothkopp/John Blaine  
Telephone Number: 684 2327/2384

				Analyses										Number of Containers	Comments			
Sample Number	Client Locator	Collect Date	Collect Time	TOC/TOTIS/TVS	NH3	TOTSULFIDE *	PSD *	Metals + HG-CVAA		BNA/CLPEST/PCB	VOA							
L20541 - 1	DWMP-1	9-APR-01	1021	✓	✓	✓	✓	✓		✓	✓							7
L20541 - 2	DWMP-2	↓	1127	✓	✓	✓	✓	✓		✓	✓							7
L20541 - 3	DWMP-3		1246	✓	✓	✓	✓	✓		✓	✓							7
L20541 - 4	DWMP-4		1406	✓	✓	✓	✓	✓		✓	✓							7
L20541 - 6	DWMP-6		1600	✓	✓	✓	✓	✓		✓	✓							7
L20541 - 7	DWMP-7		1458	✓	✓	✓	✓	✓		✓	✓							7
L -																		
L -																		
L -																		
L -																		
L -																		

Additional Comments: \_\_\_\_\_ Total Number of Containers 49 Sampled By: Mickelson, John

• Sub-contracted lab parameters.

Relinquished By:		Received By:	
Signature <u>[Signature]</u>	Date <u>09-APR-01</u>	Signature <u>[Signature]</u>	Date <u>4-9-01</u>
Printed Name <u>Scott Mickelson</u>	Time _____	Printed Name <u>DUC NGUYEN</u>	Time <u>1745</u>
Organization <u>King County Environmental Laboratory</u>		Organization <u>King County Environmental Laboratory</u>	

# LABORATORY WORK ORDER

## Chain of Custody

King County Department of Natural Resources

Water and Land Resources Division

Environmental Laboratory

322 West Ewing Street

Seattle, Washington 98119-1507

Project Name: Denny Way Pre-construction Subtidal Sediments

Project Number: 423001

Laboratory Project Manager: Fritz Grothkopp/John Blaine

Telephone Number: 684 2327/2384

				Analyses																
Sample Number	Client Locator	Collect Date	Collect Time	TOC/TOTS/TVS	NH3	TOTSULFIDE *	PSD *	Metals + HG-CVAA		BNACLPEST/PCB	VOA							Number of Containers	Comments	
L20541 - 5		10 APRIL		1	1	1	1	1		1	1							7		
L - 8																				
L - 9																				
L - 11																				
L - 12																				
L - 13																				
L - 15																				
L - 16																				
L - 17																				
L -																				
L -																				
Additional Comments:																	Total Number of Containers	72	Sampled By:	JO, KL, JO, JD
<ul style="list-style-type: none"> <li>Sub-contracted lab parameters.</li> </ul>																				
Relinquished By:										Received By:										
Signature <i>Kevin Li</i>										Signature <i>John Blaine</i>										
Date 4-10-01										Date 4-10-01										
Printed Name Kevin Li										Printed Name John Blaine										
Time 1740										Time 1740										
Organization King County Environmental Laboratory										Organization King County Environmental Laboratory										

# LABORATORY WORK ORDER

## Chain of Custody

King County Department of Natural Resources

Water and Land Resources Division

Environmental Laboratory

322 West Ewing Street

Seattle, Washington 98119-1507

Project Name: Denny Way Pre-construction Subtidal Sediments

Project Number: 423001

Laboratory Project Manager: Fritz Grothkopp/John Blaine

Telephone Number: 684 2327/2384

			Analyses																	
Sample Number	Client Locator	Collect Date	Collect Time	TOC/TOTS/TVS	NH3	TOTSULFIDE *	PSD *	Metals + HG-CVAA		BNA/CLPEST/PCB	VOA						Number of Containers	Comments		
L20541 -10		4-19-01		1	1	1	1	1		1	1						7			
L -14		↓		1	1	1	1	1		1	1						7			
L -18			1	1	1	1	1		1	1						7				
L -19			1	1	1	1	1		1	1						7				
L -																				
L -																				
L -																				
L -																				
L -																				
L -																				
L -																				
Additional Comments:																	Total Number of Containers	28	Sampled By:	JO, KL, SH, JB
<p>* Sub-contracted lab parameters.</p> <p>Samples submitted to Lab Late on 4/19/01 - Kept in Login Cooler overnight and received by Login on 4/20/01 a.m. <u>0800</u></p>																				
Relinquished By:										Received By:										
Signature <u>John Blaine</u>										Signature <u>Dana Heinz</u>										
Printed Name <u>John Blaine</u>										Printed Name <u>D. Heinz</u>										
Organization King County Environmental Laboratory										Organization King County Environmental Laboratory										
Date <u>4-19-01</u>										Date <u>4/20/01</u>										
Time <u>1800</u>										Time <u>0800 a.m.</u>										

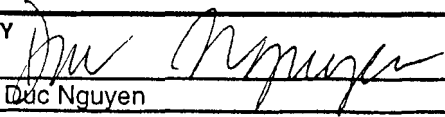
# CHAIN OF CUSTODY RECORD

Page 1 of 1

Project Number: 423001  
Purchase Order Number: 56667  
Subcontract Laboratory: Rosa Environmental Laboratory  
LPM/TC: Fritz Grothkopp

Shipment Number: EL-01-51  
Shipment Method: Courier  
Fax data to: Dana Heinz  
Fax Number: (206) 684-2395  
E-Mail Address: dana.heinz@metrokc.gov

Mail Data/Invoices to:  
King County DNR Environmental Laboratory  
Subcontract Analysis Coordinator  
322 W. Ewing Street, MS-LAB  
Seattle, WA 98119  
attn: Dana Heinz

Sample ID	Collect Date	Matrix	QC Required	Requested Parameters																No. of Containers	Comments
				PSD	Total Sulfide																
L20541-1	4/9/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-9-01		
L20541-2	4/9/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-9-01		
L20541-3	4/9/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-9-01		
L20541-4	4/9/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-9-01		
L20541-5	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-6	4/9/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-9-01		
L20541-7	4/9/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-9-01		
L20541-8	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-9	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-11	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-12	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-13	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-15	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-16	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
L20541-17	4/10/01	SaltWtrSediment	QA2	x	x													2	Total Sulfide pres. w/ ZnAcetate 4-10-01		
Additional Comments/Instructions: <b>FULL RAW DATA PACKAGE NEEDED</b> Please return signed <u>original</u> CoC with data package.																	Total Number of Containers:	30	Requested TAT: <b>14 Days</b> Data Package Due: <b>4/27/01</b>		
RELINQUISHED BY				Date		RECEIVED BY												Date			
Signature 				4-13-01		Signature															
Printed Name <b>Duc Nguyen</b>				Time		Printed Name												Time			
Organization <b>King County DNR, Environmental Laboratory</b>				1115		Organization															

Page 1 of 1

Shipment Number: EL-01-059  
Shipment Method: Courier  
Fax data to: Dana Heinz  
Fax Number: (206) 684-2395  
E-Mail Address: dana.heinz@metrokc.gov

[illegible]

Login Number: P20541

# Denny Way Pre-construction - 2001

Page: 1

~~MURDER STREET TUNNEL~~

Object Number: 423001

Personnel:

JO, KL, JB, SM, Allen

Sample Number	P20541-1	P20541-2	P20541-3
Locator	DWMP-01	DWMP-02	DWMP-03
Short Loc. Desc.			
Locator Desc.			
Site	SEATTLE WATERFRONT	SEATTLE WATERFRONT	SEATTLE WATERFRONT
Sample Depth	9 M	12 M	16 M
Collect Date	9-APR-01	9-APR-01	9-APR-01
Comments	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3
PERSONNEL	SM JO	SM JO	SM JO
DEPTH	11 cm 10 cm 12 cm	10 cm 9 cm 10 cm	17 cm 17 cm 17 cm
SED SAMP RANGE	0-2 cm	0-2 cm	0-2 cm
TYPE	23P30 23P30 23P30	23P30 23P30 23P30	23N20 23N20 23N20
WIDE COND			
WIDE HT	↓ 2 for chem		↓ 2 for chem
WE	<del>1006</del> 1006 1021	1057 1112 1127	1222 <del>1239</del> 1240
Dept., Matrix, Prod	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP

Login # L20541-5,8,9,11,12  
 Workgroup 13,15,16,17  
 Entser  
 Approved  
 Moved

Login # L20541-10,14,18,19  
 Workgroup  
 Entser  
 Approved  
 Moved

Initial / Date  
 S. Plan: DN, CHEM, TAX  
 Login #: L20541-1,2,3,4  
 WKGP #: WG  
 Entser #:  
 Approved By:  
 Moved By:

continue ...

~~Morrow Street Tunnel~~

Project Number: 423001

Personnel: \_\_\_\_\_

Sample Number	P20541-4	P20541-5	P20541-6
Locator	DWMP-04	DWMP-05	DWMP-06
Short Loc. Desc.			
Locator Desc.			
Site	SEATTLE WATERFRONT	SEATTLE WATERFRONT	SEATTLE WATERFRONT
Sample Depth	23m	4 m	20 m
Collect Date	9-APR-01	10 <del>APR</del> -01	9-APR-01
Comments	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3
PERSONNEL	SM JO	* <del>SM JO</del>	SM JO
SED DEPTH	17cm 17cm 19cm	6, 6, 4.5	17cm 17cm 17cm
SED SAMP RANGE	0-2 cm	0-2 cm **	0-2 cm
SED TYPE	23N20 23N20 23N20	34S30, 34S30, 34S30	23N20 23N20 23N20
TIDE COND			
TIDE HT			
TIME	1330 1343 1406	0900, 0928, 0900	1531 1542 1600 <sup>12 for chem</sup>
Dept., Matrix, Prod	3   SALTWTRSED   NH3 3   SALTWTRSED   PSD 3   SALTWTRSED   TOC 3   SALTWTRSED   TOTS 3   SALTWTRSED   TOTSULFIDE 3   SALTWTRSED   TVS 6   SALTWTRSED   AG-ICP 6   SALTWTRSED   AS-ICP 6   SALTWTRSED   CD-ICP 6   SALTWTRSED   CR-ICP 6   SALTWTRSED   CU-ICP 6   SALTWTRSED   HG-CVAA 6   SALTWTRSED   NI-ICP 6   SALTWTRSED   PB-ICP	3   SALTWTRSED   NH3 3   SALTWTRSED   PSD 3   SALTWTRSED   TOC 3   SALTWTRSED   TOTS 3   SALTWTRSED   TOTSULFIDE 3   SALTWTRSED   TVS 6   SALTWTRSED   AG-ICP 6   SALTWTRSED   AS-ICP 6   SALTWTRSED   CD-ICP 6   SALTWTRSED   CR-ICP 6   SALTWTRSED   CU-ICP 6   SALTWTRSED   HG-CVAA 6   SALTWTRSED   NI-ICP 6   SALTWTRSED   PB-ICP	3   SALTWTRSED   NH3 3   SALTWTRSED   PSD 3   SALTWTRSED   TOC 3   SALTWTRSED   TOTS 3   SALTWTRSED   TOTSULFIDE 3   SALTWTRSED   TVS 6   SALTWTRSED   AG-ICP 6   SALTWTRSED   AS-ICP 6   SALTWTRSED   CD-ICP 6   SALTWTRSED   CR-ICP 6   SALTWTRSED   CU-ICP 6   SALTWTRSED   HG-CVAA 6   SALTWTRSED   NI-ICP 6   SALTWTRSED   PB-ICP

6cm 4m  
6cm  
4.5

continue ...

\* Allan F  
Michelle  
JB, JO, KL, JD

\*\* JD did 0-4

# Denny Way Pre-construction

~~Marion Street Tunnel~~

Project Number: 423001

Personnel: \_\_\_\_\_

Sample Number	P20541-7	P20541-8	P20541-9
Locator	DWMP-07	DWMP-08	DWMP-09
Short Loc. Desc.			
Locator Desc.			
Site	SEATTLE WATERFRONT	SEATTLE WATERFRONT	SEATTLE WATERFRONT
Sample Depth	29 m	24	29
Collect Date	09-APR-01	10-APR-01	10-APR-01
Comments	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3
PERSONNEL	SM JO	JO, JO, JB, KL	
SED DEPTH	17 cm 17 cm 17 cm	17, 10, 16	17, 17, 17
SAMP RANGE	0-2 cm	0-2	0-2
SED TYPE	23N20 23N20 23N20	23N20, 23N20	23N20, 23N20
WATER COND			
TIDE HT			
WATER	1431 1444 1458	1038, 1100, 1115	1143, 1143, 1157
Dept., Matrix, Prod	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP

continue ...



~~Herco Street Tunnel~~

Project Number: 423001

Personnel: JB, SD, KL, SH, Allan

Sample Number	P20541-10	P20541-11	P20541-12
Locator	DWMP-10	DWMP-11	DWMP-12
Short Loc. Desc.			
Locator Desc.			
Site	SEATTLE WATERFRONT	SEATTLE WATERFRONT	SEATTLE WATERFRONT
Sample Depth	7		
Collect Date	19 APRIL		
Comments	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3
PERSONNEL			
SED DEPTH	7, 7, 7		
SED SAMP RANGE	0-2	0-2	
SED TYPE	30 N, 30 P, 30 P		
TIDE COND			
TIDE HT	<del>1355</del>		
TIME	1355, 1400, 1410, 1415		

Dept., Matrix, Prod																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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H<sub>2</sub>S smell in first grab  
but not noticeable  
in sed

Sed Black

continue ...

# Denny Way Pre-construction

~~Mercer Street Tunnel~~

Project Number: 423001

Personnel: \_\_\_\_\_

Sample Number	P20541-10	P20541-11	P20541-12
Locator	DWMP-10	DWMP-11	DWMP-12
Short Loc. Desc.			
Locator Desc.			
Site	SEATTLE WATERFRONT	SEATTLE WATERFRONT	SEATTLE WATERFRONT
Sample Depth		19	29
Collect Date		10 APR 01	10 APR
Comments	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3
PERSONNEL			
SED DEPTH		15, 12, 9	17, 17, 17
SAMP RANGE			
SED TYPE		23W20, 23W20, 23W20	20N20, 20N20, 20W2
WIE COND			
TIDE HT			
WIE		1210, 1225, 1240	1300, 1320, 1326
Dept., Matrix, Prod	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP           AREP

continue ...

## Denny Way Pre-construction

~~Merger Street Tunnel~~

Project Number: 423001

Personnel: JB, JO, K, JH, Allan

Sample Number	P20541-13	P20541-14	P20541-15
Locator	DWMP-12	DWMP-13	DWMP-14
Short Loc. Desc.			
Locator Desc.			
Site	SEATTLE WATERFRONT	SEATTLE WATERFRONT	SEATTLE WATERFRONT
Sample Depth		5	
Collect Date	19 APR	19 APR	
Comments	CHEM FREP	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3
PERSONNEL			
SED DEPTH	8	8, 6, 9	
SED SAMP RANGE	0-2	0-2	
SED TYPE	43530,	43530, 32531, 3253, 1	
TIDE COND			
TIDE HT			
TIME	1500	1500, 1615, 1630	
Dept., Matrix, Prod	3   SALTWTRSED   NH3 3   SALTWTRSED   PSD 3   SALTWTRSED   TOC 3   SALTWTRSED   TOTS 3   SALTWTRSED   TOTSULFIDE 3   SALTWTRSED   TVS 6   SALTWTRSED   AG-ICP 6   SALTWTRSED   AS-ICP 6   SALTWTRSED   CD-ICP 6   SALTWTRSED   CR-ICP 6   SALTWTRSED   CU-ICP 6   SALTWTRSED   HG-CVAA 6   SALTWTRSED   NI-ICP 6   SALTWTRSED   PB-ICP	3   SALTWTRSED   NH3 3   SALTWTRSED   PSD 3   SALTWTRSED   TOC 3   SALTWTRSED   TOTS 3   SALTWTRSED   TOTSULFIDE 3   SALTWTRSED   TVS 6   SALTWTRSED   AG-ICP 6   SALTWTRSED   AS-ICP 6   SALTWTRSED   CD-ICP 6   SALTWTRSED   CR-ICP 6   SALTWTRSED   CU-ICP 6   SALTWTRSED   HG-CVAA 6   SALTWTRSED   NI-ICP 6   SALTWTRSED   PB-ICP	3   SALTWTRSED   NH3 3   SALTWTRSED   PSD 3   SALTWTRSED   TOC 3   SALTWTRSED   TOTS 3   SALTWTRSED   TOTSULFIDE 3   SALTWTRSED   TVS 6   SALTWTRSED   AG-ICP 6   SALTWTRSED   AS-ICP 6   SALTWTRSED   CD-ICP 6   SALTWTRSED   CR-ICP 6   SALTWTRSED   CU-ICP 6   SALTWTRSED   HG-CVAA 6   SALTWTRSED   NI-ICP 6   SALTWTRSED   PB-ICP

continue ...

2 samples very different

# Denny Way Pre-construction

~~Mercer Street Tunnel~~

Project Number: 423001

Personnel: \_\_\_\_\_

Sample Number	P20541-13	P20541-14	P20541-15
Locator	DWMP-12	DWMP-13	DWMP-14
Short Loc. Desc.			
Locator Desc.			
Site	SEATTLE WATERFRONT	SEATTLE WATERFRONT	SEATTLE WATERFRONT
Sample Depth	29		13
Collect Date	10 APRIL		
Comments	CHEM FREP	CHEM: comp-3 / TAX: rep-3	CHEM: comp-3 / TAX: rep-3
PERSONNEL			
SED DEPTH	17, 17, 15	17, 17, 17	15, 12, 10
SED SAMP RANGE	0-2		
SED TYPE	20N40, 20N40, 20N40, 20N40,		23N40, 23N40, 23N40
T E COND			
TIDE HT			
T E	1350, 1350, 1400	1510, 1524	1600, 1600, 1545
Dept., Matrix, Prod	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP	3   SALTWRSED   NH3 3   SALTWRSED   PSD 3   SALTWRSED   TOC 3   SALTWRSED   TOTS 3   SALTWRSED   TOTSULFIDE 3   SALTWRSED   TVS 6   SALTWRSED   AG-ICP 6   SALTWRSED   AS-ICP 6   SALTWRSED   CD-ICP 6   SALTWRSED   CR-ICP 6   SALTWRSED   CU-ICP 6   SALTWRSED   HG-CVAA 6   SALTWRSED   NI-ICP 6   SALTWRSED   PB-ICP

Beautiful  
stuff

continue ...